SINU
SOCIETÀ ITALIANA DI NUTRIZIONE UMANA

XLIII CONGRESSO NAZIONALE

SINU 2023

Arezzo, 7-9 giugno

VOLUME ATTI

AREZZO FIERE E CONGRESSI

un evento organizzato da | BioMedia
La condivisione del sapere

COD. C001

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10731

Adherence to Mediterranean diet, lifestyle factors and body composition in breast cancer screening

A. Napoletano[1], M. Dinu[1], S. Lotti[1], G. Pagliai[1], M. Tristan Asensi [1], I. Giangrandi[1], J. Nori Cucchiari [2], F. Sofi[1,3], B. Colombini [1]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy*

[2]*Breast Unit, Careggi University Hospital, Florence, Italy*

[3]*Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*

Background: Environmental and lifestyle factors influence breast cancer (BC) incidence and progression. Our aim was to compare lifestyle factors and body composition in patients who underwent screening for BC.

Methods: Data were collected from April 2021 to March 2023 at the Breast Diagnostic Center AOU Careggi, Florence. The Medi-Lite score was used to assess adherence to MD, the International Physical Activity Questionnaire (IPAQ) for physical activity, and the Pittsburgh Sleep Quality Index (PSQI) for sleep quality. Body composition was assessed by bioelectrical impedance analysis.

Results: The study population consisted of 1,012 women (median age 52 years, range 18-86), of whom 130 (13%) had BC. Overall, the Medi-Lite score was 10 ± 2.3, suggesting moderate adherence to MD in the entire study population. One third of the participants were sedentary (n=311; 32%) and 471 women (47%) reported poor sleep quality. Regarding body mass index (BMI), the mean was 23.4 ± 4.4 kg/m2, while the percentage of fat mass was 29.7 ± 7.9%. Comparing women with and without BC, a significantly higher adherence to MD was observed in women with BC (10.5 ± 2.3 vs. 10.0 ± 2.3, p=0.017). In contrast, the scores obtained from the IPAQ and PSQI showed that women with BC were significantly (p<0.05) more sedentary (41% vs. 31%) and had worse sleep quality (62% vs. 44%). BC patients also showed a significantly (p<0.001) higher BMI (25.3 ± 5.3 vs. 23.2 ± 4.2 kg/m2) and fat mass percentage (32.7 ± 7.7% vs. 29.2 ± 7.8%) than women without BC. At a logistic regression analysis adjusted for possible confounding factors, women with a BMI≥25 kg/m2 were associated with a higher probability of having been diagnosed with BC (OR 2.00, 95% CI 1.35-2.96; p<0.0001).

Conclusion: In our sample, women with BC reported better adherence to MD, probably because they increased their attention to diet quality after their cancer diagnosis. In contrast, they reported a higher prevalence of sedentariness. In BC primary and secondary prevention, it is crucial to raise awareness among patients for a comprehensive lifestyle change, including increasing physical activity levels to reduce rates of overweight and obesity.

COD. C002

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10784

Are hypocaloric diets prescribed for weight loss interventions adherent to the EAT-IT Reference Diet?

R. De Amicis[1], A. Foppiani[1], A. Leone[1], D. Martini[1], M. Tucci[1], C. Del Bò[1], P. Riso[1], A. Battezzati[1], S. Bertoli [1]

[1]*International Center for the Assessment of Nutritional Status and the Development of Dietary Intervention Strategies (ICANS-DIS), Department of Food, Environmental and Nutritional Sciences (DeFENS), University of Milan, 20133 Milan, Italy*

Growing evidence demonstrate the urgent need to promote healthy diets and that, at the same time, have a low environmental impact. The EAT-IT reference diet (Tucci M et al, 2022) has been proposed as a Mediterranean dietary pattern in line with the EAT-Lancet Commission reference diet adapted to the Italian food habits; however, it is not yet known how to adapt such a model to hypocaloric dietary interventions.Aim of this study is to investigate how patients' characteristics attending at the the ICANS center in Milan and seeking a weight-loss intervention could influence the adherence to the EAT-IT. We included a total of 4032 patients (72% females, aged 49 (39,57) years, BMI 28.0 (24.8, 32.0) kg/m2). All the 4032 prescribed diets were hypocaloric (total energy prescribed / basal metabolic ratio = 1.04) and based on Mediterranean dietary pattern (51% carbohydrates, 31% lipids, 0.88 g/kg body weight of proteins, 17.1 g/1000 kcal of fibers), according to the Italian dietary guidelines for the treatment of overweight and obesity (SIO-ADI 2016-2017). Foods included in each diet were characterized according to the food subcategory defined in the EAT-IT reference diet, and for each diet an EAT-IT adherence score was computed as the percentage of food groups that were both included in the reference diet and respecting the expected daily or weekly amounts. The calculated EAT-IT adherence score show as only 44% of food groups included in the prescribed diets were adherent to EAT-IT: 20% of food groups prescribed are not included in the EAT-IT (eg.canned fish) and 80% were outside the portion limits recommended (eg.legumes).Linear regression model shows how diets prescribed to male were less adherent the the EAT-IT than the females ones (-2.6% (CI: -3.3, -2.0); p<0.001), probably because of the higher protein intake due to the reduced frequency of legumes prescribed. A small but significant effect of BMI on % of adherent food groups on overall food groups was detected in the linear model (0.4% (CI: 0.12, 0.68); p=0.005).These results highlight the importance of development of dietary guidelines for weight-loss interventionsconsodering the EAT-IT recommendations to better combine the nutritional demands necessary for healthy weight loss with the environmental impact.

COD. C003

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10701

Bio-district as a model for household food waste reduction: an assessment on 5 territories in Europe and northern Africa

B. Peronti[1], J.N. Di Veroli[1], L. Rossi[1]

[1]*Crea, consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria – centro di ricerca Alimenti e Nutrizione, Roma*

In 2015 the countries of the United Nations signed the new Agenda 2030 for a Sustainable Development, establishing 17 Goals and 169 sub-goals.For a sustainable development it's necessary to reduce the consumption of resources;Goal 12 aims to reduce waste through prevention policies and reuse. Target 12.3 aims at "by 2030 halve per capita global food waste at the retail and consumer levels." The Project SysOrg, Organic agro – food systems as models for sustainable food systems in Europe and Northern Africa, started in 2020.The project follows a transdisciplinary system and a multi-stakeholder approach and is based on a trans-national case study in 5 territories: Copenhagen, Cilento Bio-district, North Hessia,Warsaw,Kenitra characterized by a large part of organic farmer production. In each case territory 4 perspectives are mapped and analyzed:system transition,sustainable diet, organic food and food waste. In this work the waste perspective results will be reported.

The food waste analysis was conducted among a convenience sample of citizens aged more than 18 years residing in the 5 territories of SysOrg.The final sample size was 2,210 respondents.The collection of data in the 5 territories can be defined as snowball sampling. The questionnaire assessed the amount food wasted off in the week preceding the survey and was referring to 24 food groups. The food wasted off was reported in grams and as typologies meaning completely unused food, partially used food, meal leftovers and stored leftovers.

The results showed that Warsaw is the territory with the highest average food waste in g/family/week(145g).The Cilento Bio-district has the lowest amount on average of food waste(111g).Food was mainly wasted as 'partially used' in Cilento(261times), Copenhagen(263times) and Warsaw (425times), as 'meal leftover' in Kenitra(882times), as 'stored leftovers' in North Hessia (291times).

Food waste has a major impact on the environment by consuming natural resources such as raw materials and water and consuming energy for waste disposal.

The study of the data obtained from the household survey allows to quantify the waste in the 5 territories to act on the weaknesses of each territory aiming towards a more sustainable food system.

COD. C004

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10786

Healthful and unhealthful plant-based diets and their association with cardiometbolic targets in women diagnosed with breast cancer: a baseline cross-sectional analysis of DEDiCa study.

S. Vitale[1], E. Palumbo[1], S. Coluccia[1], A. Luongo[1], G. Porciello[1], A. Crispo[1], M. Grimaldi[1], R. Pica[1], E. Rotondo[1], A. Minopoli[2], B. Grilli[2], E. Cavalcanti[2], D. Serraino[3], F. Catalano[4], F. Ferraù[5], F. Messina[6], G. Thomas[7], V. Montesarchio[8], M. De Laurentiis[9], M. Libra[10], E. Celentano[1], L.S. Augustin[1]

[1]*Unit of Epidemiology and Biostatistics, Istituto Nazionale Tumori IRCCS "Fondazione Giovanni Pascale", Naples, Italy*
[2]*Laboratory Medicine Unit, National Cancer Institute, Istituto Nazionale Tumori, IRCCS "Fondazione G. Pascale", Naples, Italy*
[3]*Unit of Cancer Epidemiology, Centro di Riferimento Oncologico di Aviano (CRO) IRCSS, Aviano, Italy*
[4]*Cannizzaro Hospital, Catania, Italy*
[5]*U.O.C. oncologia medica, ospedale San Vincenzo, Taormina, Italy*
[6]*Ospedale Evangelico Betania, Naples, Italy*
[7]*Clinica Mediterranea, Naples, Italy*
[8]*UOC Oncologia, AORN Ospedali dei Colli-Monaldi-Cotugno-CTO, 80131 Napoli, Italy*
[9]*Division of Breast Oncology, National Cancer Institute, Istituto Nazionale Tumori IRCCS "Fondazione Giovanni Pascale", Naples, Italy*
[10]*Department of Biomedical and Biotechnological Sciences, Oncologic, Clinical and General Pathology Section, University of Catania, Catania, Italy*

Background: plant-based diets are recommended for primary and secondary prevention of breast cancer (BC). However, not all plant-foods are healthy therefore we determined the plant-based dietary index (PDI), the healthy (hPDI) and unhealthy (uPDI) indices and their associations with cardiometabolic targets in BC survivors participating in a lifestyle trial.
Methods: baseline dietary data from DEDiCa trial participants (N=506 women, mean age 52±9 years, BC stages I-III, Italy 2016-2021) were derived from 7-day food records and calculated in grams per 1000 Kcal of energy intake. PDI was calculated by assigning positive scores to plant foods and reverse scores to animal foods, hPDI by assigning positive scores to healthy plant foods and reverse scores to animal and less healthy plant foods, while uPDI by assigning positive scores to less healthy plant foods and reverse scores to animal and healthy plant foods. Scores ranged from 18 to 90. Baseline cardiometabolic variables were body mass index (BMI), waist circumference (WC), blood pressure, serum levels of glucose, glycated hemoglobin (HbA1c), triglycerides and cholesterol fractions. Multivariable-adjusted logistic regression models were used to estimate the odds ratios (OR), with corresponding 95% confidence intervals (CI) of being within a low risk cardiometabolic target for PDI consumption (above versus below the median intake).
Results: women with higher PDI (median>53) and hPDI (median>56) had higher odds of BMI<30 kg/m² (OR = 2.00, 95% CI 1.28-3.11, OR = 2.01, 95% CI 1.28-3.14, respectively). A higher hPDI showed also higher odds of BMI<25 kg/m² (OR = 2.07, 95% CI 1.35 3.17) and of WC<88 cm (OR = 2.28, 95% CI 1.47-3.55) while the inverse was found for higher uPDI, median>53 (OR = 0.60, 95% CI 0.40-0.92, OR = 0.53, 95% CI 0.34-0.82, respectively). Higher uPDI showed lower odds of HbA1c<6% (OR = 0.41, 95%CI 0.21-0.82) and of LDL cholesterol<116 mg/dL (OR = 0.63, 95%CI 0.42-0.94). No other association was found.
Conclusions: a healthy plant-based diet was associated with favorable BMI and central obesity targets while consuming less healthy plant foods was associated with higher targets for central obesity, glycemic control and LDL cholesterol levels. This analysis highlights the link of plant-based diets with cardiometabolic health and the importance of differentiating plant-foods in healthy and less healthy.

COD. C005

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10623

Quality of plant-based diets is differentially associated with biological aging: cross-sectional findings on 4,510 adults from the Moli-sani Study cohort

S. Esposito[1], A. Gialluisi[1], A. Di Castelnuovo[2], S. Costanzo[1], E. Ruggiero[1], A. De Curtis[1], M. Persichillo[1], C. Cerletti[1], M.B. Donati[1], G. De Gaetano[1], L. Iacoviello[1,3], M. Bonaccio[1]

[1]*Department of Epidemiology and Prevention, IRCCS Neuromed, Pozzilli (IS)*

[2]*Mediterranea Cardiocentro, Napoli*

[3]*Department of Medicine and Surgery, Research Center in Epidemiology and Preventive Medicine (EPIMED), University of Insubria, Varese-Como*

Background: Biological aging results from the discrepancy between biological age (BA) and chronological age (CA), and is increasingly recognized as a reliable indicator of healthy aging and mortality risk. Balanced diets including plenty of fruits and vegetables were found associated with lower slower rate of aging. However, plant-based diets can include foods with varying nutritional value and health effects. We therefore examined the association of three different pro-vegetarian (PVG) food patterns defined as general (gPVG), healthful (hPVG) and unhealthful (uPVG), with biological aging.

Methods: A cross-sectional analysis was performed on a sub-cohort of 4,510 subjects (aged ≥35 years; 52.0% women) enrolled in the Moli-sani Study (2005-2010). Food intake was assessed by a 188-item food frequency questionnaire. A pro-vegetarian food pattern was constructed by assigning positive scores to plant foods and reverse scores to animal foods. Both a healthful and an unhealthful pro-vegetarian food patterns, distinguishing between healthy (e.g. fruits, vegetables, legumes) and less-healthy plant foods (e.g. fruit juices, potatoes, sugary beverages), were built up.

A Deep Neural Network based on 36 circulating biomarkers in the Moli-sani cohort was used to compute BA and the resulting biological aging acceleration (Δage = BA-CA), which was tested as outcome in multivariable linear regression analyses adjusted for known risk factors.

Results: In multivariable-adjusted analyses, biological aging was inversely associated with the gPVG score (β=-0.03 years per unitary increase of the score; 95%CI -0.06 to -0.01) and with the hPVG score (β=-0.05; 95%CI -0.07 to -0.02); conversely, an increased uPVG score was directly associated with accelerated biological aging (β=0.03; 95%CI 0.01 to 0.05).

Conclusion: Preferring healthful vegetarian foods was inversely associated with a blood markers-based measure of biological aging, while a large dietary share of unhealthful vegetarian (mostly highly processed) foods, was associated with increased biological aging. The quality of plant foods consumed may be critical when evaluating the association of healthful diets with this emerging marker of healthy aging.

COD. C006

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10696

Sodium content in soups sold in Italy: how far are we from the global benchmarks?

M. Moretton[1], D. Martini[2], D. Angelino[3], N. Pellegrini[1]

[1]1 Department of Agricultural, Food, Environmental and Animal Sciences, University of Udine, Udine, Italy

[2]2 Department of Food, Environmental and Nutritional Sciences (DeFENS), University of Milan, Milan, Italy

[3]3 Department of Bioscience and Technology for Food, Agriculture and Environment, University of Teramo, Teramo, Italy

Globally, daily sodium intake is higher than the World Health Organization (WHO) recommended level and is one of the main leading risk factors for different diseases and death in many countries. Processed food represents one of the major contributors to daily salt intake. Therefore, WHO recently proposed global sodium benchmarks for food categories highly contributing to sodium intake, to be used for setting national policies in order to reformulate products. Ready-to-eat soups have gained popularity among consumers worldwide due to their convenience and healthy perception. Soups are available on the market as refrigerated, frozen, dried, and canned and with different formulations. The knowledge of the sodium content of such commercial items can be useful to the consumer in order to make informed and healthy choices, while the comparison with the WHO benchmarks can drive the reformulation of these products and the development of new items with lower sodium content.

Therefore, the aim of this study was: i) to investigate the sodium content of 297 soups, of which 166 refrigerated, 50 frozen, 38 canned and 43 dried, currently sold in the Italian market; ii) to compare their sodium content with the WHO benchmarks; iii) to evaluate sodium content differences among products boasting or not nutrition and health claims or organic declaration). Subgroups of different types of soups were defined based on ingredients (i.e., vegetables, legumes, cereals, meat, alone or combined).

All types of soups showed higher sodium median values than the respective benchmarks, except for frozen soups. Large variability in terms of the percentage of products with sodium content above the benchmark was observed within subgroups, as well as among products with different declarations. Overall, the highest medians were observed for soups containing only vegetables and the nutritional claim related to low content of salt was detected in only 3% of total soups.

The results of this study suggest the need to reformulate 72% of commercial soups currently on the market to contribute achieving the WHO objective of a 30% global reduction in sodium intake by 2025.

COD. C007

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10647

Sustainability perception of Italian consumers: could dietary meat be replaced with sustainability alternative?

V. Aureli[1], A. Nardi[2], N. Palmieri [3], D. Peluso[4], J.N. Di Veroli[1], U. Scognamiglio[1], L. Rossi[1]

[1]*CREA Council for Agricultural Research and Economics-Research Centre for Food and Nutrition*

[2]*Department of Mathematics, University of Rome "Tor Vergata"*

[3]*CREA Council for Agricultural Research and Economics- Research Centre for Engineering and Agro-Food Processing*

[4]*Department of Biology, University of Rome "Tor Vergata"*

The current food production system causes significant impacts on water, land use and gas production. A reduction of animal products and a switch to plant-based diets can lead positive effects on the human cardio-metabolic health, to a reduction in mortality of 6-10% and greenhouse gas emissions by 29-70% in 2050.

This study aimed to evaluate degree of Italian consumers' knowledge on food sustainability and whether alternative protein to meat, even of new generation, could be substitutes for them.

A cross-sectional survey was carried out on a sample of 815 respondents, representative of the Italian adult population for area of residence, gender and age, with a self-administrated questionnaire previously validated on the Italian population.

Factor Analysis was performed, for each of the selected factors we derived a corresponding score and based on these a non-hierarchical cluster analysis was undertaken crossed to sociodemographic characteristics. The analysis showed that there are five identified clusters in the sample and the role of meat results the latent factor that explains the large part of the common variance observed in the factorial analysis. The large majority (90.7%) of the sample require for rules by policymakers and recognize the individual responsibility (willingness to do) as relevant actions to be put in place to improve the sustainability of dietary choices (Cluster 1, 2 and 4). The role of meat in the diet split in two parts the sample of consumers with strong motivations either for willing to do or rules request (34.1% Cluster 2 - very sustainable consumer vs. 31.9% Cluster 4 - meat consumer willing sustainable). The remaining 10% on the sample belong to "no change consumers" group (Cluster 3) and "unsustainable consumers" (Cluster 5), which shows general lack of interest in the sustainability issue.

This study highlighted how Italian consumers are divided on the importance of meat in their diet despite the request for more rules by third parties (e.g. government, EU, etc.) and the willingness to switch toward a more sustainable diet.

COD. C008

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10656

The food composition database on plant-based meat analogues: nutritional analysis on healthy and unhealthy meal scenarios

F. Fiori[1], S. Cutroneo[2], D. Angelino[3], D. Martini[4], M. Parpinel[1], N. Pellegrini[5]

[1]*Department of Medicine, University of Udine, Udine*

[2]*Food and Drug Department, University of Parma, Parma*

[3]*Department of Bioscience and Technology for Food, Agriculture and Environment, University of Teramo, Teramo*

[4]*Department of Food, Environmental and Nutritional Sciences (DeFENS), University of Milan, Milan*

[5]*Department of Agricultural, Food, Environmental and Animal Sciences, University of Udine, Udine*

Background: the growing awareness of the health and environmental benefits of plant-based diets has increased interest in plant-based meat analogues (PBMA), which are nowadays broadly available on the Italian market. Nevertheless, there is a lack of their complete composition data. The aim of the work is to present the newly developed food composition database on PBMA and apply it to 2 hypothetical meal scenarios.

Methods: the food composition database was created from 255 commercial products whose label information was previously collected[1]. It includes the mean energy and nutrient composition of 37 PBMA, grouped based on typology, main ingredients, and nutritional profile. Food composition was imputed using food label information combined with the standard recipe approach[2]. A fast-food meal with burger and bacon, and a meal containing steak developed according to dietary guidelines[3] were analysed for energy and nutrient content when meat products were replaced with 2 versions (low and high protein content) of PBMA counterparts.

Results: regardless of meat or PBMA presence, all fast-food meals are higher in lipids and lower in fibre than the guideline-based meals. However, the fast-food meal with meat has higher energy (812 vs. 761 and 793 kcal), lipid (43 vs. 36 and 32% En) and β-carotene (155 vs. 645 and 198 µg), and lower fibre (4.7 vs. 12.4 and 11.0 g) than the fast-food meals with low and high protein PBMA, respectively. The composition of the guideline meal with steak is similar to the corresponding meal where steak was replaced with high protein PBMA (729 vs. 765 kcal; 22 vs. 23% En from proteins; 27 vs. 25% En from lipids; 3168 vs. 3189 µg of β-carotene). The meal where steak was replaced with low protein PBMA has lower energy (686 kcal) and protein (13% En), higher lipids (31% En) and β-carotene (4977 µg) than the steak meal.

Conclusions: when PBMA are chosen as alternatives to meat, their nutritional composition needs to be considered. Therefore, the recommendation of reducing meat consumption and its substitution with plant-based foods may be misleading if not associated with adequate nutritional literacy.

[1]Cutroneo et al. Front. Nutr. 2022,9:852831.

[2]Fiori et al. Nutrients 2022,14:4171.

[3]CREA. Linee Guida per una sana Alimentazione Italiana 2018.

COD. C009

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10764

Association between coffee consumption and risk of peptic ulcer disease: A prospective analysis in the SUN cohort

A. Leone[1], M. Valdés[2], C. Sayón-Orea[3,4,5,6], M.A. Martínez-González[3,5,6,7], E. Toledo[3,5,6], F. Menichetti[1], S. Bertoli[1,8], A. Battezzati[1,9], M. Bes-Rastrollo[3,5,6]

[1]*International Center for the Assessment of Nutritional Status and the development of Dietary Intervention Strategies, Department of Food, Environmental and Nutritional Sciences (DeFENS), University of Milan*

[2]*Department of Digestive, Clinica Universidad de Navarra, Pamplona, Spain*

[3]*Department of Preventive Medicine and Public Health, University of Navarra, Pamplona, Spain*

[4]*Navarra Public Health Institute, Pamplona, Spain*

[5]*CIBERobn, Instituto de Salud Carlos III, Madrid*

[6]*Navarra Institute for Health Research (IdiSNA)*

[7]*Department of Nutrition, TH Chan School of Public Health, Harvard University, Boston, MA, USA*

[8]*Laboratory of Nutrition and Obesity Research, Department of Endocrine and Metabolic Diseases, Istituto Auxologico Italiano, IRCCS, Milan, Italy*

[9]*Clinical Nutrition Unit, Department of Endocrine and Metabolic Diseases, Istituto Auxologico Italiano, IRCCS, Milan, Italy*

Coffee is one of the most widely consumed beverages across the world. Moderate coffee consumption has been found beneficial in preventing cardiometabolic diseases, degenerative diseases and some types of cancer. However, its effect on the gastrointestinal system is controversial. We conducted a prospective analysis of 16974 participants from the SUN project, a Spanish prospective cohort including former students of the University of Navarra, registered professionals, and other university graduates, to assess the association between coffee consumption (total, caffeinated and decaffeinated), caffeine intake and peptic ulcer disease (PUD) risk. Baseline information on sociodemographic and lifestyles variables, medical history, and dietary habits were obtained by a mailed questionnaire. Medical status was updated every two years by mailed questionnaires asking the occurrence of new diseases. Multivariable Cox regression was used to assess the association between coffee consumption (no consumers, ≤1, 1-2, >2 cups/day), caffeine intake (quartiles: <10.7, 10.7-30.3, 30.3-73.2, >73.2 mg/day) and PUD risk. Confounders were sex, age, BMI, recruitment year, education, marital status, health career, following a special diet, smoking, physical activity, energy intake, ultraprocessed food consumption, dietary pattern, known Helicobacter pylori infection, GERD, hiatal hernia, NSAIDs and aspirin use. In a median follow-up of 13.7 years, 320 new cases of PUD were recorded. Compared with non-consumers, participants consuming coffee >2 cups/day had a lower risk of PUD (HR=0.66, 95%CI: 0.47, 0.93, Ptrend=0.023). Notably, consumption of >2 cups/day of caffeinated coffee was associated with a lower PUD risk (HR=0.63, 95%CI: 0.47, 0.84, Ptrend=0.004), while no association was found for decaffeinated coffee consumption. We also observed a linear 10% decrease in the PUD risk for each cup of caffeinated coffee consumed (HR=0.90, 95%CI: 0.81, 1.00, P=0.042). Finally, participants in the highest quartile of caffeine intake had a lower PUD risk than those in the lowest quartile (HR=0.63, 95%CI: 0.44, 0.90, Ptrend=0.004). Sensitivity analysis did not substantially change our results. In conclusion, our data suggest that the consumption of caffeinated coffee may be protective against PUD.

COD. C010

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10629

Changes in taste perception and food preferences in cancer patients undergoing antineoplastic therapies

J. Di Meglio[1], C. Rorandelli[1], L. Doni[2], C. Dinnella[1], V. De Giorgi[3], E. Monteleone[1], B. Zuccaro[3], E. Gambale[2], F. Venturi[3], G. Roviello[4], S. Spinelli[1]

[1]*Dept. of Agriculture, Food, Environment & Forestry, Section of Food Science and Technology, University of Florence*
[2]*Medical Oncology Unit, Careggi University Hospital, Florence*
[3]*Dermatology Unit, Palagi Hospital, Florence*
[4]*Dept. of Health Sciences, Section of Clinical Pharmacology & Oncology, University of Florence*

Taste and smell alterations are underestimated side effects of antineoplastic therapy which may contribute to change in food preferences and dietary habits, exposing patients to an increased risk of malnutrition. A better understanding of the link between food preferences and taste changes, will allow the development of tailored dietary advice.

Our study, currently in progress, aims to enroll 100 cancer patients undergoing antineoplastic treatment. Patients are evaluated before, during and after therapy (when not lifelong treatment). Food habits, weight, and body composition are monitored periodically. Intensity of basic tastes (sweet, bitter, salt, and sour) and pungency in aqueous solutions presented at two concentrations (weak/moderate and moderate/strong), and of bitterness of 6-n-propyl-2-thiouracil (PROP) are measured to assess taste responsiveness. Food preferences are assessed with a choice questionnaire presenting pairs of foods/beverages that vary in texture, flavor, odor or taste. In addition, qualitative semi-structured interviews were conducted.

Preliminary data on 13 patients (64.3 ±18.9 yrs; 86% males) show a general trend of decreased perception for all stimuli presented at weak/moderate intensity, while PROP responsiveness remains unchanged. A Principal Component Analysis highlights individual differences in taste alterations after the first cycle: patients without changes, patients with reduced sensitivity, and a patient with a heightened sensitivity. Interestingly, patients who self-report difficulties in perceiving tastes or bad tastes in the mouth (bitter, metallic, acid), report no alterations when tasting solutions. Moreover, a decreased addition of black pepper, an increased preference for chili pepper and lemon as condiments, and for herbal tea over water are reported by some patients. Lastly, a slight but non-significant decrease in weight and muscle mass is also observed.

These early findings show that taste changes affect food preferences after the first cycle of therapy even if with large interindividual variations. It appears that both quantitative and qualitative methods are required to understand the impact of therapies on food experience to develop tailored sensory-nutritional strategies to prevent malnutrition.

COD. C011

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10742

Correlation between breast cancer patients' body composition and neo-adjuvant chemotherapy related toxicities: the COMBOTOX study

C. Rossi[1], A. Filippone[1], A. Di Leone[2], L. Ionta[2], M.M. Rossi[1], C. Maggiore[1], A. Di Micco[1], L. Forcina[1], P.C. Pafundi[3], A. Franco[2], A. Fabi[4], D.A. Terribile[2], R. Masetti[2], G. Franceschini[2], S. Magno[1]

[1]*Centro Komen Italia per i trattamenti integrati in oncologia - Dipartimento Scienze della Salute della Donna e del Bambino e di Sanità Pubblica, Fondazione Policlinico Universitario A. Gemelli IRCCS, 00168 Roma*

[2]*Breast Unit, Dipartimento Scienze della Salute della Donna e del Bambino e di Sanità Pubblica, Fondazione Policlinico Universitario A. Gemelli IRCCS, 00168 Roma*

[3]*Servizio di Epidemiologia e Biostatistica - Gemelli Generator, Fondazione Policlinico Universitario A. Gemelli IRCCS, 00168 Roma*

[4]*Medicina di Precisione in Senologia - Fondazione Policlinico Universitario A. Gemelli IRCCS, Roma -00168 Roma*

BACKGROUND

Chemotherapy (CT) dosing is based on Body Surface Area (BSA), a parameter that overlooks fat mass (FM) and fat free mass (FFM), which are known to affect the amounts of drugs absorbed by the body. As a result, even when adjusting for patients' weight/height, toxicities are more frequent in overweight/obese women and this often leads to reduction or discontinuation of scheduled regimens, with detrimental effects on the oncological outcomes. Aim of this study was to highlight the correlations between anthropometric measures, body composition and main toxicities related to neoadjuvant chemotherapy (NAC) in non-metastatic breast cancer (BC) patients.

METHODS

This is a retrospective cohort study of 120 BC patients undergoing NAC at Fondazione Policlinico Gemelli in Rome. Before starting NAC, all patients underwent a nutritional screening with evaluation of anthropometric parameters (height, weight, waist and hip circumferences), body mass index (BMI) and body composition by Bioelectrical Impedance Analysis (BIA) to determine FM, FFM, Phase Angle (PA) and Total Body Water. Mean age of the patients was 49.3 years (SD 11.9). The anthropometric and composition median values were the following: BMI 25 kg/m2; Waist (cm) 88 [81–98]; Hip (cm)102 [96–110]; WHR 0.87 (0.07); PA° 5.3 [4.9–5.6]; FAT% 32.7 (8.5); FFM% 67.5 [60.5–73.7].

RESULTS

In ordinary logistic regression models, a suggestive association emerged for a protective role of a lower FM toward neurological toxicity (OR 0.95, 95%CI 0.91-1.00; p=0.058) and of normal weight (OR 0.49, 95%CI 0.24-1.01; p=0.052). Lower FAT% show significant protection toward hematologic toxicity in the platinum-containing protocol subgroup (IOR 0.82, 95%CI 0.67-0.99; p=0.041).

CONCLUSION

Assessment of body composition can represent a reliable index in predicting the risks of chemo-related toxicity, yet it is not part of the standard of care in clinical practice. Body composition parameters, if properly integrated with anthropometric measures, can allow a more accurate definition of CT doses, in order to reduce toxicities and improve outcomes. Further prospective studies on larger samples are needed to confirm these correlations and to better define the role of body composition in absorption and distribution of anticancer agents.

COD. C012

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10615

Impact of online adapted physical activity in combination with functional foods on uremic sarcopenia.

M. Di Lauro[1], G. Marrone[1], C. Guerriero[1], A. Murri[2], E. Grazioli[2], S. Urciuoli[3], C. Cerulli[2], E. Tranchita[2], M.P. Mitterhofer[1,4], A. Parisi[2], A. Noce[1,4]

[1]*Dep. of Systems Medicine, University of Rome Tor Vergata*

[2]*Dep. of Exercise, Human and Health Sciences, University of Rome Foro Italico*

[3]*Dep. of Statistics, Informatics, Applications "G. Parenti" (DISIA), PHYTOLAB, University of Florence*

[4]*UOSD of Nephrology and Dialysis, Policlinico Tor Vergata, Rome*

Chronic kidney disease(CKD) is often characterized by the "uremic sarcopenia"(SU), described as an increase in the loss of muscle mass and strength, physiologically related to age. Literature data suggest that regular physical activity in combination with a personalized nutritional treatment is effective in counteracting the CKD progression and its comorbidities. The aims of our study is to evaluate the potential benefits of a protocol of adapted physical activity(APA), supervised and performed online for 6 weeks, combined with the supplementation of plant-based bars(PB), on muscle mass and strength, on renal function biomarkers and on CKD metabolic alterations in a group of nephropathic patients.

The study is still ongoing. To date, 32CKD patients (stage I-III, according to the K-DIGO guidelines) with an average age of 61,7(55-70) years have been recruited and divided into 4 groups homogenous for age and gender. Group A followed the online APA protocol (3 sessions of 1 hour/week) combined with the daily intake of 2 antioxidant and anti-inflammatory PB. The PB consist of micronized extracts titrated in active compounds (HPLC-DAD-MS) with high total antioxidant capacity (Folin-Ciocalteu). The extracts are obtained mainly from Actinidia deliciosa, Vitis vinifera L. and Olea europaea L. Group B followed only the APA protocol. Group C took on only the 2PB. Group D was the control group. At enrollment and after 6 weeks, all patients performed assessment of muscle strength, physical performance, body composition, thickness of the quadriceps femoris muscle and laboratory parameters, blood pressure and oxidative stress.

Preliminary data showed a significant increase in azotemia in D group($p=0,04$). In A and B groups, we observed a reduction in systolic and diastolic blood pressure values($p<0,05$), a reduction in oxidative stress($p<0,05$), a thickening of the quadriceps femoris muscle, in both lower limbs($p<0,05$). At the end of the study, a reduction in CRP was observed in C group($p=0,02$). Furthermore, an increase in physical performance was highlighted in the groups that assumed the PB.

These preliminary data suggest that the innovative combination of the APA with the PB would seem to induce a positive synergistic effect on US, respect to the single therapeutic approaches.

COD. C013

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10630

Nutritional patterns as machine learning predictors of liver health in a population of elderly subjects

R. Tatoli[1], L. Lampignano[1], R. Sardone[1]

[1]*National Institute of Gastroenterology IRCCS "Saverio de Bellis", Research Hospital, Castellana Grotte, Italy*

Non-Alcoholic Fatty Liver Disease (NAFLD) is a condition that includes a wide range of clinicopathologic conditions. It affects about 25 % of the population worldwide and its prevalence increases with BMI and age [1]. There is currently no definitive treatment for NAFLD but European guidelines recommend a lifestyle-based approach, including a healthy diet [2]. The aim of this study was to investigate the interactions between eating habits and the risk of steatosis and/or hepatic fibrosis, using a machine learning approach, in a non-institutionalized older population. We recruited 1929 subjects, mean age 74 years, from the population-based Salus in Apulia Study. Dietary habits and the risk of steatosis and hepatic fibrosis were evaluated with a validated food frequency questionnaire, the Fatty Liver Index (FLI) and the FIB-4 score, respectively. A Random Forest method is used to detect a dietary pattern predictive of liver fibrosis. This analysis showed that a pattern of 10 food groups was predictive of the risk of having NAFLD. These groups are, in order of importance: fruit, sweets, white meat, olives and olive oil, dairy products, fruiting vegetables, sugar, coffee, potatoes and ready-to-eat meals. In particular, the z-scores show us that only the group including olives and olive oil was negatively associated with FLI, while the other food groups were positively associated with it. The food pattern defined as a ranking of the nutritional features most predictive of liver fibrosis consisted of (in order of importance in the graph): fruiting vegetables, potatoes, ready meals, cereals and cereal products, wine, liquor, dried fruit, seafood, caloric beverages and white meat. All these food groups were positively associated with FIB-4. Both patterns reflect the Western dietary model, characterized by the consumption of refined foods, with a rich content of sugars and saturated fats, caloric drinks, both alcoholic and non-alcoholic. This study further supports the concept of diet as a factor that significantly influences the development of most widespread liver diseases.

1. Powell, E.E.; Wong, V.W.-S.; Rinella, M. Non-Alcoholic Fatty Liver Disease. The Lancet 2021, 397, 2212–2224.
2. EASL-EASD-EASO Clinical Practice Guidelines for the management of non-alcoholic fatty liver disease. J Hepatol. 2016 Mar 10.

COD. C014

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10673

Retrospective analysis of predictors drop-out rate in dietary treatment in a historical cohort of patients with overweight and obesity

E. Colombo[1], M. Guglielmetti[1,2], O.E. Ferraro[3], A. Tagliabue[1], C. Ferraris[1,2]

[1]*Department of Public Health, Experimental and Forensic Medicine, Human Nutrition and Eating Disorder Research Center, University of Pavia, Pavia, Italy*

[2]*Laboratory of Food Education and Sport Nutrition, Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy*

[3]*Biostatistic Unit, Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy*

BACKGROUND: Obesity is a chronic disease with multifactorial aetiology; for its complexity, frequently patients with obesity fail to maintain adherence to treatment (especially in the long term). Our study aims at evaluating the drop-out rate in a historical cohort of patients and identifying its predictors, focusing on individual characteristics, weight-loss-related aspects and psychological factors.

METHODS: In this retrospective observational study we examined 772 adult patients with obesity or overweight (550 females, 222 males; mean age 43.5±13.6 years) who underwent a traditional dietary weight-loss treatment, Cognitive-Behavioral Therapy or nutritional counseling approach at the “Human Nutrition and Eating Disorders Center” (Pavia, Italy) between January 2003 and December 2020. Pre-treatment variables (personal, socio-demographic, anthropometric data; results from psychometric tests SCL-90, BDI, BES, TAS-20) and treatment-related variables (type of treatment; weight loss at 1, 3, 6, 12 month follow-up) were collected, distinguishing those who completed or abandoned the treatment. Multivariable regression analysis was used to identify the independent predictors of drop-out.

RESULTS: The drop-out rates were 60.2% at 6 months and 80.8% at 12 months. We observed that male gender ($p=0.051$), purely aesthetic motivation ($p=0.013$), no referral ($p=0.041$), SCL-90 paranoid-ideation subscale ($p=0.035$) and SCL-90 Global Symptom Index ($p=0.040$) were associated with attrition. The early weight-loss was the strongest drop-out predictor at 6 and 12 months ($p<0.001$). CBT was the least treatment type associated with drop-out at 6 months ($p=0.004$), while nutritional counseling at 12 months ($p=0.026$).

CONCLUSION: Our data confirm high drop-out rates in obesity treatment, as reported in other studies on this topic. Psychopathological tracts, patient’s motivation and referral result as drop-out predictors, but the strongest predictor is the early weight loss; this underlines the importance of close monitoring especially in the first weeks. The most effective therapeutic approaches (CBT and nutritional counseling) underline the central role of the dietitian in a multidisciplinary team for the treatment of complex pathologies such as obesity.

COD. C015

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10617

The obesity “weight” in renal hyperfiltration.

G. Marrone[1], M. Di Lauro[1], C. Masci[1], C. Guerriero[1], K. Cornali[1], A. De Lorenzo[2], A. Noce[1,3]

[1]*Dep. of Systems Medicine, University of Rome Tor Vergata*

[2]*Sec. of Clinical Nutrition and Nutrigenomic, Dep. of Biomedicine and Prevention, University of Rome Tor Vergata*

[3]*UOSD of Nephrology and Dialysis, Policlinico Tor Vergata, Rome*

Obesity (OB) is a chronic multifactorial disease caused by a chronically positive energetic balance. OB increases the risk of developing other non-communicable diseases, such as chronic kidney disease (CKD), etc. Two pathophysiological models have been proposed to explain the onset of CKD in obese subjects. The first is characterized by a hemodynamic cause and the primary event is the vasodilatation of the afferent arteriole, with consequent glomerular hyperfiltration. The second supports the tubulocentric hypothesis, and the primary event represented by an increased reabsorption of sodium and water in the proximal tubule, with a consequent decrease in solute release from macula densa, resulting in glomerular hyperfiltration.

The retrospective study was conducted in Tor Vergata University Hospital, Rome. Inclusion criteria were: CKD stage I-V in conservative therapy, age over 18 years, both sexes, body mass index (BMI) ≥25 kg/m2.

A total of 137 CKD patients (87 men and 57 women) were enrolled. The study population was divided into 2 groups, according to the BMI value: i) <30 kg/m2, ii) ≥ 30 kg/m2. The results in the group i showed GFR and azoturia/24h values significantly lower vs. group ii (34.7±21.1 vs 44.97±22.9 ml/ min, p=0.028; 15.1±2.4 vs 21.1±8.4 g/24h, p=0.007). Furthermore, a two-year follow-up (T1) was conducted in a subgroup of 20 patients, divided into 2 groups according to BMI range, iii) 25-29.9kg/m2 vs., iv) ≥30kg/m2. Creatinine and e-GFR were evaluated. At T1, group iii showed significantly higher creatinine values (2.29±0.78 vs 2.63±0.75 mg/dl; p=0.0255) and significantly lower e-GFR values (29 .10 ± 13.51 vs 23.40 ± 9.02 ml/min; p=0.0624).

As for end-stage renal disease (ESRD), even patients with CKD in conservative therapy would seem to present the "reverse epidemiology" phenomenon. In fact, according to this paradox, in ESRD patients, a higher BMI would seem to correlate with a lower risk of cardiovascular mortality.

The results obtained demonstrate that higher BMI are related to higher e-GFR value and this data would seem to highlight a better residual renal function. Furthermore, in the 2-year follow-up, those with a BMI ≥ 30kg/m2 had slower progression of CKD to ESRD than those with a BMI between 25-29.9 kg/m2.

COD. C016

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10634

A Mediterranean Diet-based nutritional intervention to reduce Metabolic Syndrome risk after heart transplantation.

M. Marinoni[1], S. Sponga[1,2], V. Ferrara[1], G. Valdi[2], C. Nalli[1], C. Di Nora[1], G. Benedetti[1], M. Parpinel[2], L. Ugolino[1,2], I. Vendramin[1]
[1]*Cardiothoracic Department, University Hospital of Udine, Udine, Italy*
[2]*Department of Medicine (DAME), University of Udine, Udine, Italy*

Introduction: heart-transplanted (HTx) patients are inclined to develop the Metabolic Syndrome, mainly due to the side effects of their long-life immunosuppressive therapy. The Mediterranean Diet (MD) has proven to be effective preventing Metabolic Syndrome in general population.
Aim: to assess the impact of a nutritional intervention based on MD principle in HTx patients with high risk of Metabolic Syndrome.
Materials and methods: at baseline (T0), after 6 (T1), and 12 months (T2) patients were invited to compile a 4-day dietary record (4dDR) to bring at the scheduled visits. During the meetings, a nutritionist detected dietary habits and provided personalised nutritional advice, monitoring the improvement during the follow-ups. At each timepoint, nutritional, clinical, anthropometric, and body composition data were collected. To estimate nutrient intakes from 4-dDR was used The Italian Food Composition Database (BDA). The study was approved by the Regional Ethics Committee.
Results: at T0, 50 patients were enrolled, 30 of them have reached the T1, and 17 the T2. The mean age of the subjects was 57±13 years (males: 87%). During the study period, dietary habits showed: a significant increase of the MD score [T0=4.5 (3.0 – 5.0) vs. T2=6.0 (4.0 – 7.0); p=0.004]; a significant decrease of daily total energy intake and, in particular, of total fats and saturated fatty acids [T0=18.5 (15.6 – 24.8) g/day vs. T1=16.3 (12.6 – 19.5) g/day; p=0.001]; a significant increase of fiber, vitamin E, and DHA intakes between T0 and T2. Together with the improvement of dietary habits, body composition showed already at T1 a significant decrease of fat mass (%) (T0=22.3 ± 7.7 vs. T1=18.3 ± 7.8; p=0.002), and a significant increase of fat free mass (%) (77.5 ± 7.9 vs. 81.4±8.2; p=0.002). Furthermore, Metabolic Syndrome diagnosis criteria improved at each timepoint and its prevalence showed an important reduction from 50% at T0, to 37% at T1, to 29% at T2.
Conclusions: the nutritional intervention based on MD principle, providing personalized dietary advices, resulted in an overall improvement of patient's dietary habits and MD adherence; consequently, multiple beneficial effects were observed on body composition and Metabolic Syndrome condition.

COD. C017

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10677

Adherence to Mediterranean diet in Italy (ARIANNA) cross-sectional survey

E. Cardamone[1], F. Iacoponi[1], A. Di Nucci[1], M. Silano[1]

[1]Unit of Human Nutrition and Health, Department of Food Safety, Nutrition and Veterinary Public Health, Italian National Institute of Health, Rome, Italy

Over the last years, many Mediterranean countries have witnessed a shift away from the traditional dietary patterns due to globalisation and westernisation. Recent surveys of the Italian population have found an Adherence to Mediterranean Diet (AMD) ranging from low to moderate. This picture has inevitably contributed to the high rates of overweight and obesity found in national surveillance systems of all age groups.
Adherence to Mediterranean Diet in Italy (ARIANNA) study aims to evaluate the AMD and its main determinants in the Italian population. Moreover, this is the first survey with the objective of reporting to national policy makers the results, in order to implement evidence-based interventions and to fulfil the commitments of the UN Decade of Action on Nutrition 2016-2025 and the UN 2030 Agenda.
The ARIANNA survey started on 1st March 2023 and is addressed to males and females aged ≥7 years, born and resident in Italy, proficient in Italian. Data are collected electronically through a voluntary, anonymous and self-administered questionnaire on the project website. The questionnaire consists of an initial part on sociodemographic factors, health status and lifestyle, and a second one on participants' dietary habits. The Mediterranean Diet Quality Index in children and adolescents for participants aged ≤16 years and the Mediterranean Diet Serving Score for those aged ≥17 years were chosen to assess the AMD.
So far, data from 3732 adult participants have been collected and homogeneity by geographical area and representativeness at national level have been verified. The 87.70% of the sample was female and the 71.28% was 17-40 years old. The 83.82% of the respondents had medium AMD, 11.33% low and only 4.85% high. The multivariate ordered logistic regression analysis revealed that being male ($p<0.001$), aged >40 years ($p<0.05$), workers and unemployed ($p<0.05$) influences the probability of having a lower AMD. In addition, vegans and vegetarians ($p<0.001$) are more likely to have a higher AMD.
Overall, these results highlight a medium AMD in the Italian adult population and suggest the necessity to implement tailored intervention strategies to improve food habits.

COD. C018

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10719

Determinants of adherence to the Mediterranean diet in five Mediterranean countries: the DELICIOUS project

F.M. Di Domenico[1], J. Godos[1], S. Laudani[1], A. Mata[2], M.I. Pardo[2], P. Busó[2], G. Grosso[1]

[1]*Department of Biomedical and Biotechnological Sciences, University of Catania, Catania, Italy*

[2]*AIJU, Technological Institute for children's products & leisure, Alicante, Spain*

An abandonment of traditional dietary patterns is growingly observed in Mediterranean countries, especially among younger generations. This study aimed to explore the level of adherence to the Mediterranean diet in five Mediterranean countries and to investigate the potential lifestyle determinants. The study is a cross-sectional analysis of data from 5 Mediterranean countries (Italy, Spain, Portugal, Egypt, and Lebanon) within the context of the EU funded project DELICIOUS (UnDErstanding consumer food choices & promotion of healthy and sustainable Mediterranean diet and LIfestyle in Children and adolescents through behavIOUral change actionS). The sample consisted of 2011 parents of children and adolescents aged 6-17 years old. The main background characteristics, including age, sex, education, family situation, weight status, physical activity levels, sleep and screen time duration, were collected. The level of adherence to the Mediterranean diet was assessed using the KIDMED index. Eating habits (i.e., breakfast, place of eating, etc.) were also investigated. Logistic regression analyses were performed to test for likelihood of higher adherence to the Mediterranean diet. The mean KIDMED score in the study sample was 6.1 [standard deviation (SD) 2.0] with significant differences across countries [Lebanon 5.7 (SD 2.0), Italy 5.8 (SD 2.1), Spain 6.3 (SD 2.1), Egypt 6.5 (SD 1.9), and Portugal 6.5 (SD 2.0)]. A total of 865 participants were deemed as highly adherent to the Mediterranean diet [highest tertile, mean KIDMED score = 8.0 (SD 0.9)]. Major determinants of higher adherence to the Mediterranean diet were the following: among background characteristics, younger age group, higher physical activity level and adequate sleep duration; regarding dietary habits, having breakfast, out-of-home eating, eating with family members and at school, and home-cooked meals were associated with higher Mediterranean diet adherence. Parents' younger age and higher education were also determinants of higher adherence. In conclusion, a cluster of healthy lifestyle behaviors can be observed among Mediterranean children and adolescents as determinants of higher adherence to the Mediterranean diet.

COD. C019

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10734

Assessment of NUTritional knowledge, dietaRy habits and behavIour in sporty WOmen to evaluate the possible impact on their MENstrual function (NUTRI-WOMEN)

S. Fiorini[1,2], M. Guglielmetti[1,2], A. Tagliabue[1], D. Bosoni[3,4], V. Perone[3,4], R.E. Nappi[3,4], C. Ferraris[1,2]

[1]*Human Nutrition and Eating Disorder Research Center, Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy*

[2]*Laboratory of Food Education and Sport Nutrition, Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy*

[3]*Research Center for Reproductive Medicine, Gynecological Endocrinology and Menopause, IRCCSS. Matteo Foundation, 27100, Pavia, Italy*

[4]*Dept of Clinical, Surgical, Diagnostic and Paediatric Sciences, University of Pavia, Pavia, Italy*

Background: Energy availability (EA) is defined as the difference between food energy intake and the energy spent on physical exercise. It represents the energy still available for normal body functions maintenance. Low EA (LEA) causes an impairment of normal physiological functions, as described in the Athlete's Triad (AT). AT is characterized by: (1) low energy availability, linked to the presence of an eating disorder or high energy requirement; (2) functional hypothalamic amenorrhea and (3) reduced bone mineral density. LEA is also the basis of the syndrome of Relative Energy Deficiency in Sport (RED-S) linked to impairments of metabolic rate, menstrual function, bone and cardiovascular health and immunity. Aim: The study aims to evaluate the possible impact of nutritional knowledge, dietary habits and behavior of sporty women on their menstrual function. Methods: Inclusion criteria: age 16-30 years, female, practicing physical activity >2 times/week, diagnosis of functional hypothalamic amenorrhea (FHA) and subscribing the informed consent. Participants underwent anthropometric (weight, height, waist and hip circumferences, skinfold thickness) and body composition evaluation (bioelectrical impedance analysis), dietary habits evaluation (validated 110-items FFQ and 7-day food diary); dietary behavior evaluation (ORTO-15, ORTO-R, EDI-2, EAT-26 questionnaire). Physical activity and lifestyle were investigated through LEAF-Q and IPAQ, while nutritional knowledge through GeSNK questionnaire. Results: 73 women were included in the study (mean age 26,0±5,9; mean BMI 19,9±2,0; kg/m2, mean fat mass 19,9±4,6). LEAF-Q showed an increased risk of AT in 55,6% of participants (mean score 8,2±3,9); ORTO-15 test highlighted an increased risk of Orthorexia in 18 patients. The GeSNK questionnaire revealed a high nutritional knowledge (mean score 76,3±8,5); while a clinical condition of LEA (EA<30 kcal/kg FFM/day) was reported for 11 patients and a subclinical condition of LEA (30<EA<45 kcal/kg FFM/day) for 27 women. Conclusions: The results suggest the importance of guaranteeing nutritional counseling combined with food education intervention that could lead patients to make correct and informed choices, to restore normal body function.

COD. C020

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10776

Association between bone health and anthropometrics, nutritional knowledge and adherence to the Mediterranean Diet in women undergoing to DXA: a cross-sectional study

S. Callegaro[1], D. Martini [3], D. Angelino [4], F. Scazzina[1], G. Passeri[2], A. Rosi[1]

[1]*Department of Food and Drug, University of Parma, Parma, Italy*

[2]*Department of Medicine and Surgery, University of Parma, Parma, Italy*

[3]*Department of Food, Environmental and Nutritional Sciences (DeFENS), University of Milan, Milan, Italy*

[4]*Department of Bioscience and Technology for Food, Agriculture and Environment, University of Teramo, Teramo, Italy;*

Osteoporosis is one of the leading non-communicable chronic diseases and its prevalence is expected to increase. To reduce the growing number of subjects affected by osteoporosis, and the related cost, action is necessary in primary prevention. The Mediterranean Diet (MD) has been reported as a protective factor against osteoporosis. Furthermore, increasing evidence has proved that improving nutritional knowledge (NK) can positively influence lifestyle and dietary behaviors.

This study aimed to evaluate the relation between the occurrence of osteoporosis in women undergoing to Dual Energy X-ray Absorptiometry (DXA) and BMI, adherence to the MD, assessed to the MEDILITE questionnaire, and NK about bone health, assessed through a questionnaire validated in this study (NUTRIBONE).

Bone density data (column T-score, femoral neck T-score, and total femoral T-score) were collected via DXA and used to diagnose osteoporosis (T-score < -2.5 SD) or osteopenia (T-score between -1 and -2.5 SD). Weight and height were measured to obtain BMI.

A total of 268 women (64.5 ± 10.3 years, 97% in menopause, BMI 24.9 ± 4.8 kg/m2) were recruited between January and September 2022 at the Maggiore University Hospital of Parma. The 53% of the subjects were diagnosed with osteoporosis, and 36% with osteopenia. Participants had a mean score for adherence to the MD of 8.4 ± 0.9 and bone health NK median score of 21. A direct correlation was found between BMI and column T-score ($r = 0.34$; $p < 0.001$), total femoral T-score ($r = 0.45$; $p < 0.001$), and femoral neck T-score ($r = 0.38$; $p < 0.001$), whereas an inverse correlation was observed between age and column T-score ($r = -0.14$; $p = 0.023$), total femoral T-score ($r = -0.27$; $p < 0.001$), and femoral neck T-score ($r = 0.30$; $p < 0.001$). Bone mass measurements were not significantly associated with NK nor with adherence to the MD.

Age and BMI were found as the two factors most related to bone health and therefore maintaining an adequate weight status emerged as a critical risk factor for osteoporosis prevention. Further investigations are warranted in bigger sample populations to better explore the role of behavioral, socio-economic and educational factors on bone health.

COD. C021

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10689

Effects of a dietary intervention with lacto-ovo-vegetarian and Mediterranean diets on apolipoproteins, lipid profile and cardiovascular risk: results from the CARDIVEG study

B. Colombini[1], G. Pagliai[1], M. Dinu[1], S. Lotti[1], M. Tristan Asensi[1], A. Napoletano[1], I. Giangrandi[2], A. Kura[1,3], A.M. Gori[1,3], R. Marcucci[1,3], F. Sofi[1,2]

[1]*Dept. of Experimental and Clinical Medicine, University of Florence, Italy*
[2]*Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*
[3]*Unit of Atherothrombotic Diseases, Careggi University Hospital, Florence, Italy*

Background: Cardiovascular disease (CVD) is still the leading cause of death worldwide. Attention in recent years is turning toward the role that apolipoproteins might play as markers of CVD risk. However, to date, evidence regarding the effects of diet on apolipoproteins is still limited.

Aim: To compare the effects of Mediterranean diet (MD) and lacto-ovo vegetarian diet (VD) on anthropometric parameters, lipid profile, inflammatory profile, and apolipoprotein levels, in subjects with low-to-moderate CVD risk.

Methods: Fifty-two clinically healthy subjects (39F; mean age: 49.1±12.4 years), followed a MD and a VD for 3 months each. Demographics, risk factors, dietary and lifestyle habits were collected from each subject at the baseline. Anthropometric parameters and blood samples were obtained both at the beginning and at the end of the MD and VD periods.

Results: Both MD and VD resulted in significant reductions in body weight, BMI and fat mass. VD led to a significant reduction in LDL (-5%; p=0.038), while MD led to a significant reduction in plasma triglycerides (-9%; p=0.018). Both diets led to a reduction in most of the inflammatory parameters, but MD was more effective in reducing IL-10 (-37.2%; p=0.009) and IL-17 (-49.1%; p=0.002). As for apolipoproteins, a statistically significant change was observed only for Apo C1 after VD (+24.4%; p=0.020). MD led to a statistically significant negative correlation between Apo C3 and carbohydrates (R=-0.29; p=0.039) whereas VD led to a statistically significant negative correlation between Apo D and saturated fats (R=-0.38; p=0.006). In addition, a statistically significant positive correlation emerged after MD between change in plasma triglycerides and change in Apo C1 (R=0.32; p=0.020) and Apo D (R=0.30; p=0.031). On the other hand, after VD a significant positive correlation emerged between change in HDL and Apo D (R=0.33; p=0.017). Subgroup analysis revealed positive effects on apolipoprotein levels from both diets, especially in women, individuals with >50 years, and those with <3 CVD risk factors.

Conclusions: Both diets resulted in improved apolipoprotein levels, especially in certain population subgroups, while also demonstrating different associations with specific dietary nutrients.

COD. C022

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10706

Glucose and insulin homeostasis during a low or a high glycemic index diet may be modulated by sex: data from the MEDGI-Carb trial

M. Vitale[1], G. Costabile[1], R.E. Bergia[2], T. Hjorth[3], W.W. Campbell[2], R. Landberg[3], G. Riccardi[1], R. Giacco[4]

[1]*Diabetes, Nutrition and Metabolism Unit, Department of Clinical Medicine and Surgery, Federico II University, Naples, Italy*

[2]*Department of Nutrition Science, Purdue University, 700 West State St., West Lafayette, USA*

[3]*Department of Food and Nutrition Science, Chalmers University of Technology, Gothenburg, Sweden*

[4]*Institute of Food Science, National Research Council, Avellino, Italy*

Introduction: Several data suggest that the ability to regulate glucose and insulin homeostasis is different between sex. This may explain why males and females have a different prevalence of diabetes and prediabetes. However, there are few studies on this topic, conducted on small groups of participants, that do not allow to evaluate whether sex is an important modulator of the postprandial glucose and insulin responses. Against this background, it has been hypothesized that the impact on daily plasma glucose and insulin profiles of the glycemic index (GI) of the habitual diet may differ according to sex.

Objectives: The aim of this study is to evaluate whether daily plasma glucose and insulin profiles during a low- or a high-GI diet in individuals at high risk of developing type 2 diabetes are influenced by sex.

Methods: We conducted a randomized, controlled, parallel group dietary intervention, comparing high- versus low-GI diets in a multi-national (Italy, Sweden, and the United States) sample of adults at risk for type 2 diabetes. For 12 weeks, participants consumed either a low-GI or high-GI Mediterranean diet. Compliance to the diets was evaluated by 7-day food records. We assessed daily plasma glucose and insulin profiles separately for males and females.

Results: One hundred fifty-six adults (82 females,74 males) with at least two traits of the metabolic syndrome completed the intervention. In females, the high-GI induced significantly higher (23%) average daily plasma glucose concentrations in comparison to the low-GI diet already on the first day of the intervention; the difference increased up to 37 % after 12 weeks of diet. Conversely, there were no significant differences between the two diets in males. These results were confirmed by the two-way analysis of variance showing a statistically significant interaction between the effects of sex and diet on the daily plasma glucose profile ($F=7.887$, $p=0.006$).

Conclusions: The results of our intervention show that women, compared to men, are more sensitive to the metabolic effects of the dietary GI. This has a strong clinical and scientific relevance and might have important implications for dietary strategies for diabetes and cardiovascular disease prevention in the context of personalized nutrition.

COD. C023

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10643

The relationships between the risk of malnutrition and thyroid hormones in stroke patients admitted to a rehabilitation unit

O. Di Vincenzo[1], E. Pagano[2], M. Cervone[2], R. Natale[3], A. Morena[3], M. Murolo[3], M. Dentice[3], F. Pasanisi[3], L. Scalfi[1]

[1]*Department of Public Health, Federico II University of Naples, Italy*

[2]*Casa di Cura Santa Maria del Pozzo, Somma Vesuviana (Naples), Italy*

[3]*Department of Clinical Medicine and Surgery, Federico II University of Naples, Italy*

Background

Malnutrition is common in stroke patients, being associated with neurological and cognitive impairment as well as clinical outcomes. Despite alterations in thyroid hormone levels have been related to poor outcomes in stroke patients, to date their association with nutritional risk has not been examined. The aim of this study was to investigate the relationships of nutritional screening tools, functional recovery tests and bioelectrical impedance analysis (BIA) variables with thyroid hormones in stroke patients.

Methods

Post-acute stroke patients aged ≥50 years admitted to a rehabilitation unit participated in this cross-sectional study. As nutritional screening tools, the Geriatric Nutritional Risk Index (GNRI), the Prognostic Nutritional Index (PNI), and the Controlling Nutritional Status score (CONUT) were calculated within 48 hours from admission. BIA was performed on the non-affected body side and the raw variables phase angle (PhA) and impedance ratio (IR) were considered as proxy indexes of body cell mass. FT3, FT4 and TSH levels were determined, and functional recovery tests (Barthel Index, modified Rankin Scale and Trunk Control) performed.

Results

Preliminary data on 224 patients (52% men; age 66.9±13.5 years, BMI 26.9±4.2 kg/m²) are reported. Our findings displayed a high prevalence of the risk of malnutrition (63% by GNRI, 42% by PNI and 46.8% by CONUT score). FT3 values (but not TSH or FT4) showed a significative association ($p<0.001$) with GNRI, PNI and CONUT scores. For each tool, a clear difference in FT3 emerged when patients at moderate/high risk of malnutrition (categorical variable) were compared to the remaining ones. Furthermore, stroke patients with FT3<median value exhibited lower values of GNRI, PNI and CONUT scores compared to those>median value and greater prevalence of moderate/high risk. FT3 was also associated with different functional recovery tests, as well as with PhA and IR.

Conclusions

In stroke patients, altered T3 levels were associated with nutritional risk and functional recovery as well as with raw BIA variables. These results suggest that thyroid hormones should be considered in the nutritional assessment. Further studies are needed to explore whether FT3 varies depending on changes in nutritional status.

COD. C024

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10692

An oral (poly)phenol challenge test (OPCT) to identify metabotypes for the main dietary (poly)phenols and understand the factors associated with their formation

C. Mignogna[1], J.F. Rinaldi De Alvarenga[1], C. Favari[1], N. Bragazzi[1], V. Agulló[1], E. Monica[1], M.S. Morandini[1], A. Rosi[1], N. Tosi[1], V. Spigoni[2], R. Aldigeri[2], A. Bianchera[1], L. Bresciani[1], G. Frascio[2], G. Frigeri[2], S. Seveso[2], R. Musa [3], P. Cerati[3], R. Aloe[3], F. Turroni[4,5], V. Barili[6], D. Martorana[6], F. Scazzina[1], R. Bettini[1], M. Ventura[4,5], A. Dei Cas[2], R. Bonadonna[2], F. Brighenti[1], D. Del Rio[1,5], P. Mena[1,5]

[1]*Dip. Scienze degli Alimenti e del Farmaco, Università di Parma, Parma*

[2]*Dip. Medicina e Chirurgia, Università di Parma, Parma*

[3]*Lab. Chimica Clinica ed Ematologia, Azienda Ospedaliero-Universitaria di Parma, Parma*

[4]*Dip. Scienze Chimiche, della Vita e della Sostenibilità Ambientale, Università di Parma, Parma*

[5]*Microbiome Research Hub, Università di Parma, Parma*

[6]*Genetica Medica, Azienda Ospedaliero-Universitaria di Parma, Parma*

Background: Increasing evidence shows that (poly)phenol-rich diets are associated to a reduction of non-communicable diseases. However, heterogeneity in the bioavailability and physiological response to the consumption of these food bioactives can affect their efficacy. Individuals showing similar metabolic profiles for specific (poly)phenols can be clustered into phenolic metabotypes. This study aims at identifying aggregate phenolic metabotypes related to a wide range of dietary (poly)phenols.

Methods: An intervention study was carried out on 298 healthy volunteers (18-74 y) to collect dietary and lifestyle information, clinical data and biological samples. Subjects underwent a standardised oral (poly)phenol challenge test consisting in an acute supplementation of several classes of dietary (poly)phenols. Urine samples collected during the following 24-h were analysed through UPLC-IMS-HRMS to assess the individual urinary excretion of phenolic metabolites, allowing clustering according to aggregate metabotypes. Blood samples were analysed to determine common cardiometabolic health biomarkers and for whole-genome genotyping. Faeces were subjected to microbial profiling to determine gut microbiota composition at species level. Cardiometabolic risk scores were also computed.

Results: Preliminary results on 180 subjects (51.3% women, 36.1 y (SD ± 14.9)) indicated that 72% of the sample had a normal weight, 23% was overweight and 5% obese. A preliminary targeted approach was performed for the identification of about 130 (poly)phenol metabolites and population clustering according to different metabotypes.

Conclusions: These preliminary results on 180 subjects out of 298 showed two main metabotypes and their putative association with individual characteristics. Further analyses are ongoing to provide a deeper knowledge on inter-individual variability determinants involved in metabotype formation and its relation to the cardiometabolic health status.

Funding Sources: This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (PREDICT-CARE study, Grant Agreement N. 950050).

COD. C025

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10790

Effect of a polyphenol-rich diet on biomarkers of intestinal permeability and inflammation in older adults: The MaPLE randomised controlled trial.

M. Marino[1], C. Del Bo'[1], D. Martini[1], S. Perna, M. Porrini[1], A. Cherubini[2], G. Gargari[3], T. Meroño[4], N. Hidalgo-Liberona[4], G. Peron[4], C. Andres-Lacueva[4], P.A. Kroon[5], S. Guglielmetti[3], P. Riso[1]

[1]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Human Nutrition, Università degli Studi di Milano, Milano, Italy.*

[2]*Geriatria, Accettazione Geriatrica e Centro di Ricerca per l'Invecchiamento, IRCCS INRCA, Ancona, Italy.*

[3]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Food Microbiology and Bioprocesses, Università degli Studi di Milano, Milano, Italy.*

[4]*Biomarkers and Nutrimetabolomics Laboratory, Department of Nutrition, Food Sciences and Gastronomy, Faculty of Pharmacy and Food Sciences, CiberFES, ISCIII, University of Barcelona, 08028, Barcelona, Spain.*

[5]*Quadram Institute Bioscience, Norwich Research Park, Norwich NR4 7UQ, United Kingdom.*

Elevated intestinal permeability (IP) can be observed among older individuals and it can lead to immune system activation and low-grade systemic inflammation. Diet could represent a potential strategy to reduce IP. The MaPLE project evaluated the hypothesis that (poly)phenol intake could affect various important targets and pathways related to IP. The goal of the present study has been to identify further candidate biomarkers of IP and to assess their modulation following a polyphenol-rich diet (PR-diet). A Randomised, controlled, crossover study was performed on 51 participants (≥ 60 y) with increased IP, as determined by serum zonulin levels. Participants were randomly assigned to one of two intervention groups: a control diet (C-diet) or a PR-diet. Each intervention lasted 8 weeks separated by an 8-week washout period. We found a reduction of serum zonulin levels which were associated with blood microbial DNA as a further IP marker. Serum and fecal samples were used to measure zonula occludens-1 (ZO-1), occludin, fecal zonulin, adiponectin, calprotectin, fecal calprotectin, soluble cluster of differentiation 14 (sCD14), interleukin-6 receptor (IL-6R), and vascular endothelial-cadherin (VEC) levels through ELISA kits. Pearson correlation and network correlation analysis have been performed to identify the relationship among biomarkers at baseline. Specifically, the serum calprotectin was directly associated with fecal calprotectin, tumor necrosis factor-α, IL-6, C-reactive Protein (CRP), and age. Network correlation analysis showed the presence of a cluster of subjects represented by high levels of occludin, IL-6R, and VEC, with potential inflammatory-induced endothelial dysfunction. A significant treatment × time interaction has been observed for serum calprotectin levels ($p = 0.025$), which decreased after the PR-diet. Additionally, a significant increase in ZO-1 was found ($p = 0.001$) after both the PR-diet and C-diet. In conclusion, our study showed that the intake of a PR-diet in older subjects with higher IP can reduce not only zonulin levels, as previously reported, but also serum calprotectin, a marker of systemic inflammation. Furthermore, the analysis at baseline highlighted a potential panel of IP and inflammatory biomarkers to be further explored in future intervention studies on different at-risk target populations.

COD. C026

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10749

Effects of “Golden Tomato” on metabolic, oxidative, and inflammatory signaling: study in a diet-induced rat model of metabolic syndrome

D. Di Majo[1,2], R. Pipitone[3], G. Giglia[1,4,2], S. Grimaudo[3], M. Allegra[5,2], F. Rappa[1], G. Ferraro[1,2], P. Sardo[1,2], G. Gambino[1]

[1] *Department of Biomedicine, Neuroscience and Advanced Diagnostics, University of Palermo, 90100 Palermo, Italy*

[2]*Postgraduate School of Nutrition and Food Science, University of Palermo, 90100 Palermo, Italy*

[3] *Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties, University of Palermo, 90100 Palermo, Italy*

[4]*Euro Mediterranean Institute of Science and Technology, I.E.ME.S.T, 90139 Palermo, Italy*

[5]*Department of Biological, Chemical and Pharmaceutical Sciences and Technologies (STEBICEF), University of Palermo, Italy*

Metabolic syndrome (MetS) is a widely-diffused clustering of risk factors associated with obesity, cardiovascular disease and alteration of oxidative status. Tomato fruits defined as “Golden” refer to a food product harvested at an incomplete ripening stage with respect to red tomato at full maturation, representing an excellent source of bioactive compounds. The aim of the work was to evaluate the effects of golden tomato (GT) on metabolic, inflammatory and redox homeostasis alterations induced by a High Fat Diet (HFD) on an experimental rat model with metabolic syndrome by investigating liver dysfunction correlated with genes expression. Firstly, we showed that GT possesses a different phytonutrient composition and better antioxidant and radical scavenger properties than the red tomato (RT). Then, in vivo experimental model involved the use of male wistar rats fed for 8 weeks with the HFD diet and then treated for 4 weeks with oral supplementation at daily dosage of 200mg/Kg body weight of GT in combination with the HFD diet. Data revealed that the treatment with GT reduce the body weight gain in HFD rats and improves the lipid profile. It also counteracts insulin resistance and reduces glucose intolerance. In addition, GT improves antioxidant status by increasing thiol groups and reduces plasma lipoperoxides. Relevantly, not only does GT supplementation reduce systemic oxidative stress but also significantly counteract the HFD-induced, hepatic production of reactive oxygen and nitrogen species (RONS) and of the reactive aldehyde species (MDA). The protective effect of GT on hepatic lipotoxicity induced by the HFD diet is also demonstrated by histological analysis showing regression of hepatic steatosis and by gene expression analysis demonstrating its activity on genes involved in fatty acid accumulation and lipid metabolism as well as tissue inflammation. The current study demonstrates, for the first time in vivo that Golden Tomato can ameliorate the metabolic, oxidative, and inflammatory signaling in MetS, and thus could be taken into account for the prevention and treatment of hepatic dysfunction.
Di Majo D., et al. 2022. Antioxidants, 12(1). Doi.10.3390/antiox12010089

COD. C027

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10620

Effects of two isocaloric healthy diets on postprandial lipid response in type 2 diabetes patients.

D. Salamone[1], G. Costabile[1], G. Della Pepa[1], R. Testa[1], M. Vitale[1], P. Cipriano[1], A. Rivellese[1], G. Annuzzi[1], L. Bozzetto[1]

[1]*Department of Clinical Medicine and Surgery, Federico II University, Via Sergio Pansini 5, 80131 Naples, Italy*

Introduction: Postprandial lipid concentrations are an independent risk factor for atherosclerosis and may better predict cardiovascular disease risk (CVD) than fasting measurements in individuals with Type 2 Diabetes (T2D). Quantitative and qualitative dietary changes are known to be the main modulators of postprandial lipid response.
Objective: To investigate the effects of an isocaloric Multifactorial diet on postprandial lipid response in individuals with type 2 diabetes (T2D). quantity and quality diet.
Methods: According to a randomized controlled parallel group design, 43(25M/18F) T2D patients, 35–75 years old, were assigned to an 8-week isocaloric intervention with a Multifactorial diet rich in MUFA, PUFA, fibre, polyphenols, and vitamins (n=21) or a MUFA rich diet (n=22). Before/after the intervention plasma triglycerides, total and HDL-cholesterol concentrations were measured at fasting and over a 4h test-meal with a similar composition as the assigned diet.
Results: Fasting plasma triglycerides and total cholesterol did not change after both diets; HDL-cholesterol significantly decreased after Multifactorial (42±10 vs 39±8 mg/dL, p=0.010), but not after MUFA diet (39±9 vs. 39±10 mg/dL, p=0.324), with no significant difference between groups (p=0.090). Postprandial triglycerides (iAUC) did not change significantly after Multifactorial (5790±5008 vs. 5661±6057, mg/dL*240 min, baseline vs. 8-week, p=0.370) and MUFA diet (7579±4424 vs. 8503±4382 mg/dL*240 min, p=0.194); with a significant difference between groups (p=0.018). Total cholesterol (iAUC) did not change after Multifactorial diet (-1866±1466 vs -1957±1218 mg/dL*240 min, p=0.725); while it tended to decrease less after MUFA diet (-1511±1324 vs -953±1109 mg/dL*240 min, p=0.077), with a significant difference between groups (p=0.013). Postprandial HDL-cholesterol did not change after Multifactorial diet (-708±399 vs -642±402 mg/dL*240 min, p=0.725); it decreased less after MUFA diet (-723±466 vs -431±440 mg/dL*240 min, p=0.014), with no difference between groups (p=0.066).
Conclusion: In T2D patients, a Multifactorial diet improved postprandial lipid profile especially in terms of triglycerides response.

COD. C028

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10695

Exploring the impact of individual variability in bitterness perception and liking for vegetables of Asteraceae and Brassicaceae families and the relationship to adherence to the Mediterranean diet

M. Piochi[1], A. Pieroni[1], G. Morini[1], A. Devecchi[1], F. Mareggiato[1], C. Nervo[1], G. Svalduz[1], R. Migliavada[1], D.M. Zocchi[1], L. Torri[1]
[1]1 Università degli Studi di Scienze Gastronomiche

Humans present at least 25 active bitter receptors, each showing complex tuning. Bitterness is associated with numerous beneficial effects on health, many probably still unknown. However, bitterness is often disliked among consumers. Most studies considered the Brassicaceae vegetables (B) as bitter (e.g., broccoli, Brussels sprouts), while scarce attention has been paid to vegetables of the Asteraceae family (A), which instead are traditional in several Mediterranean areas. Using Italy as a case study, this study explores the individual variability in bitterness perception and liking for these vegetables in relationship to adherence to the Mediterranean diet (AMD).

A sensory test was conducted in the sensory analysis laboratory of the University of Gastronomic Sciences (Pollenzo, Italy) involving 109 subjects (56% females; median age: 26 y.o.; mostly living in medium-sized cities, omnivorous and non-smoker). Participants tasted 10 vegetables (5 A, 5 B), some of which raw and some cooked. Collected data included: perceived bitterness intensity and liking for 10 vegetables, Adherence to the Mediterranean Diet (AMD), Body Mass Index (BMI), type of diet, familiarity and way of consumption for 23 vegetables, and responsiveness to the bitterness of PROP.
Participants were much more familiar with B than with A vegetables. Familiarity of vegetables and liking are discussed. The most familiar vegetables were broccoli, cauliflower, lettuce, cabbage and rocket, while the least familiar were green radish and watercress. Most of the vegetables are eaten cooked. Cooked vegetables were generally perceived as less bitter than raw ones. The most bitter vegetables were: green radicchio (A), rocket (B) and horseradish (B). For all these vegetables, an incredibly high individual variation in perceived bitterness was observed. In fact, cluster analysis approaches revealed the existence of clusters with different perceived intensity of bitterness and related liking.
When dividing participants into three classes of AMD according to tertiles (low, medium, and high), AMD significantly affected familiarity and overall liking. Significant differences of familiarity among AMD tertiles were found for artichoke, chicory, black cabbage, turnip tops, broccoli, savoy cabbage, turnip, and rocket. Furthermore, results showed a significant difference in overall liking of B and A vegetables. People in the highest AMD declare a higher consumption of vegetables and, also showed a higher consumption and liking for the bitter ones. So, a higher AMD not only translate into a higher vegetables' consumption but also and particularly in bitter vegetables and a higher liking for them.

COD. C029

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10612

Olive oil consumption is associated with lower all-cause and cancer mortality risk among Italian adults: results from the Moli-sani Study

E. Ruggiero[1], A. Di Castenuovo[2], S. Costanzo[1], S. Esposito[1], A. De Curtis[1], M. Persichillo[1], C. Cerletti[1], M.B. Donati[1], G. De Gaetano[1], L. Iacoviello[1,3], M. Bonaccio[1]

[1]*Department of Epidemiology and Prevention, IRCCS NEUROMED, via dell'Elettronica, 86077 Pozzilli (IS), Italy*

[2]*Mediterranea Cardiocentro, Napoli, Italy*

[3]*Department of Medicine and Surgery, Research Center in Epidemiology and Preventive Medicine (EPIMED), University of Insubria, 21100 Varese-Como, Italy*

Background: Olive oil is a key component of a traditional Mediterranean Diet and its cardiovascular health benefits have been well documented in large cohorts worldwide. However, the relationship of olive oil with mortality risk has been less explored especially amongst Mediterranean populations. Moreover, the mechanistic pathways potentially linking olive oil with health outcomes have not been exhaustively evaluated at epidemiological level. We prospectively evaluated the relationship between olive oil consumption and mortality in an Italian general population and to examine biological pathways common to major chronic diseases as possibly underlying these associations. Methods: Longitudinal analysis on 22,895 men and women (mean age 55.4±11.7 y) from the Moli-sani Study (enrolment, 2005-2010) followed up for 12.2 years. Dietary data were collected by a food frequency questionnaire, and olive oil consumption was standardized to a 10 g tablespoon (tbsp) size. Cox regression models were used to estimate hazard ratios (HRs) and 95% confidence intervals (95%CIs). Results: The analysed sample consists of 11,973 women (52.3%) and 10,922 men (47.7%) with a mean age at enrolment of 55.4 y (SD±11.7), and an average olive oil consumption of 23.3 g/d (SD ±8.9). Compared with individuals who rarely consumed olive oil (≤1.5 tbsp/d), participants who had the highest consumption (>3 tbsp/d) reported 18% lower rate of mortality from any cause (multivariable-adjusted HR= 0.82; 95% CI: 0.70-0.97). Much of this association was driven by a lower rate in cancer death (HR= 0.71; 0.54-0.94), while the association with CVD mortality was somewhat weaker (HR=0.80; 0.60-1.05). Among known risk factors analysed, lower levels of blood pressure and resting heart rate, and higher serum Vitamin D concentrations associated with high consumption of olive oil accounted for 10% of its inverse relationship with cancer mortality. Conclusions: Higher olive oil consumption was associated with a lower hazard rate in all-cause, cancer and, to a lesser extent, CVD mortality, independent of overall diet quality. Known risk factors for major chronic diseases only in part mediate such associations suggesting that other pathways are potentially involved in this relationship.

COD. C030

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10608

Short-term fructose feeding affects mitochondrial homeostasis by modulating the miR-34a-5p/SIRT1:AMPK pathway in the liver and skeletal muscle of young and adult rats

G. Petito[1], F. Cioffi[2], N. Magnacca[1], M. Ventriglia[1], A. Di Porzio[3], A. Lanni[1], R. Senese[1]

[1]*Università degli Studi della Campania "Luigi Vanvitelli" Dip. di Scienze e Tecnologie Ambientali, Biologiche e Farmaceutiche*

[2]*Università degli Studi del Sannio Dip. di Scienze e Tecnologie*

[3]*Università degli Studi di Napoli "Federico II" Dip. di Biologia*

Dietary high fructose (HFrD) is known as a metabolic disruptor contributing to the development of obesity, diabetes, and dyslipidemia. Children are more sensitive to sugar than adults due to the distinct metabolic profile, therefore it is especially relevant to study the metabolic alterations induced by HFrD and the mechanisms underlying such changes in animal models of different ages. Emerging research suggests the fundamental role of epigenetic factors such as microRNAs (miRNAs) in metabolic tissue injury. In this perspective, the aim of the present study was to investigate the involvement of miR-34a-5p examining the effects induced by fructose overconsumption and to evaluate whether a differential miRNA regulation exists between young and adult animals. We used young rats (30 days) and adult rats (90 days) fed on HFrD for a short period (2 weeks) as animal models. The results indicate that both young and adult rats fed on HFrD exhibit an increase in systemic oxidative stress, the establishment of an inflammatory state, and metabolic perturbations involving miR-34a-5p and its axis. In the liver and skeletal muscle, the increase in miR-34a-5p levels induced by HFrD leads to a reduction in SIRT-1 levels and in P-AMPK levels indicating a decrease in fat oxidation and an increase in fat synthesis. Furthermore, 2 weeks of HFrD were sufficient to alter the mitochondrial dynamic in the liver of young and adult rats. In addition, the liver and skeletal muscle of young and adult rats exhibit an imbalance in the antioxidant enzyme machinery. In conclusion, our findings highlight a strict involvement of miR34a-5p in the metabolic dysregulations induced by short-term fructose overconsumption and its potential role in mediating inter-tissue communication. These findings imply the need to reduce sugar consumption, particularly during adolescence.

COD. C031

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10651

The role of chronotype on body composition, eating habits and cardiometabolic risk parameters in a sample of overweight/ obese subjects

S. Lotti[1], M. Dinu[1], M. Durante[1], F. Tuci[1], M. Tristan Asensi[1], G. Pagliai[1], A. Napoletano[1], I. Giangrandi[2], B. Colombini[1], F. Sofi[1,2]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Italy*

[2]*Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*

Background: In recent years, the role of chronotype on obesity has been hypothesised, as subjects with an evening chronotype showed worse eating habits. However, the results are still limited and conflicting. The aim of the study is therefore to assess differences in body composition, eating habits and cardiometabolic parameters according to chronotype in a sample of overweight/obese subjects.
Methods: Overweight/obese subjects (BMI>25 kg/m2) aged 18-65 years were recruited at the Clinical Nutrition Unit of Careggi University Hospital, Florence, from March to April 2023. The chronotype was defined through the Morningness-Eveningness Questionnaire (MEQ). Each participant underwent a body composition and a blood sampling. Information on eating habits was collected with a food frequency questionnaire and a 3-day food diary.
Results: The study population consisted of 51 overweight/obese subjects (71% women; 29% men) with a mean age of 50.3 ± 13.5 years and a mean BMI of 29.4 ± 4.3. Based on the MEQ score, 13 participants had an evening chronotype (26%) and 38 (74%) a morning chronotype. No significant differences in weight and body composition according to chronotype were observed. However, differences emerged for eating habits with a significantly ($p<0.05$) higher number of evening subjects reported to consume sweets, soft drinks and fast food. Analysis of the food diaries showed that evening subjects had a significantly higher intake of daily calories (1,867.6 ± 434. vs. 1,612.2 ± 538.5 kcal/day), fat (78.2 ± 20.9 vs. 65.4 ± 23.8 g/day) and carbohydrates (226.1 ± 47.5 vs. 186.3 ± 77.6 g/day). The analysis of cardiometabolic risk circulating parameters showed that evening subjects had significantly lower folate values (4.69 ± 2.1 vs. 8.25 ± 6.36 ng/mL) than morning subjects, as well as significantly lower vitamin B12 values (349.6 ± 132.3 vs. 445.5 ± 144.5 pg/mL).
Conclusion: Evening subjects followed worse eating habits and a higher intake of total daily calories, fat and carbohydrates, by also reporting significantly lower values of folic acid and vitamin B12.

COD. C032

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10633

Ultra-processed food consumption in people with type 2 diabetes: data from the TOSCA.IT trial

G. D'Abbronzo[1], O. Vaccaro[1], G. Riccardi[1], M. Masulli[1], M. Vitale[1]

[1]*Dipartimento di Medicina Clinica e Chirurgia, Unità di Diabete, Nutrizione e Metabolismo, Università Federico II di Napoli, Italia*

Objective: Recent epidemiological studies suggest that higher consumption of ultra-processed food (UPF) is associated with increased risk of multiple CVD risk factors including obesity, hypertension, and metabolic syndrome. However, most of the available studies have been conducted in people without diabetes. Therefore, the aims of this study were: 1) to describe the intake of UPF and their main food sources, 2) and to evaluate the association of UPF with cardiovascular risk factor profile, in a large cohort of people with type 2 diabetes.
Methods: 2660 people with type 2 diabetes, aged 50 to 75 years, enrolled in the TOSCA.IT study, filled in a food frequency questionnaire (EPIC) to assess the habitual diet. Anthropometric characteristics and metabolic profile were measured according to standard protocol. UPF was defined using the NOVA classification system according to degree of processing and categorized as sex-specific quintiles of UPF consumed, expressed as g/1000 Kcal/day.
Results: People in the highest quintile of UPF were more likely to be young (63.5±6.1vs61.3±7.0), with less diabetes duration (9.1±6.vs8.3±6.0), and with lower educational status (34.2% vs 6.2%). Higher intake of UPF (Q5, ≥221.7 g/1000 Kcal/day), as opposed to the lowest (Q1, UPF <40.9 g/1000 Kcal/day), was associated with a significant increase in BMI (29.7±4.3vs30.5±4.6 Kg/m2, p=0.02), total cholesterol (177.4±35.4vs181.4±38.8 mg/dl, p=0.009), LDL-cholesterol (101.1±30.7vs 104.4±33.3 mg/dl, p=0.015), triglycerides (144.1±70.5vs151.9±72.5 mg/dl, p=0.021) and CRP (0.32±0.50vs0.46±2.54 mg/dl, p=0.048). Regarding diet, a significant lower intake of total proteins (18.5±2.7vs17.8±2.7), especially from vegetable food sources (6.1±1.2vs5.2±1.0), MUFA (18.4±4.4 vs17.2±3.4), starch (31.1±9.4vs25.3±7.1), fiber (11.5±3.0vs10.1±2.6) and alcohol (13.0±18.8vs 7.9±13.3), and a higher intake of SAFA (11.4±2.7vs12.6±2.5), cholesterol (168.2±57.2vs 187.1±52.5), and added sugar (1.0±2.2vs4.9±4.4), had been in the highest quintile as opposed to the lowest (p<.001 for all). As expected, the adherence to the Mediterranean Diet was lower in the Q5 compared to the lower quintile (Q1) (9.6±2.7vs8.0±2.9).
Conclusions: A diet rich in UPF is associated with a worsening of CVD risk factors in people with type 2 diabetes, possibly through an altered diet composition. Elevated UPF intake represents a major public health concern in primary CVD prevention.

COD. P001

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10564

DOES PROVIDING EDUCATION IN NUTRITION INFLUENCE NURSING STUDENTS' ATTITUDES TO THE NUTRITIONAL CARE OF ELDERLY HOSPITALISED PATIENTS?

S. Vaccaro[1], V. Lacerra[2], G. Mercurio[2], D. Mecugni[2], G. Amaducci[2]

[1]*Clinical Nutrition Unit and Oncological Metabolic Center - AUSL-IRCCS di Reggio Emilia, Reggio Emilia, Italy*

[2]*Nursing Bachelor's Degree Programme - Università degli Studi di Modena e Reggio Emilia, Reggio Emilia, Italy*

Introduction.

The literature reports that nurses lack nutrition knowledge and present negative attitudes towards nutritional care. For the academic year 2020/2021, a seminar on clinical nutrition has been activated within the Nursing Bachelor's Degree Programme at the University of Modena and Reggio Emilia. This study aims to assess whether this nutrition training influenced nursing students' attitudes towards nutritional care.

Materials and Methods.

Second-year nursing students (75; M: 17 [22.7%]; F: 58 [77.3%]) participated in a seminar on clinical nutrition. Through the administration of "the Staff Attitudes to Nutritional Nursing care Geriatric scale (SANN-G)", also validated in Italian, the student's attitudes towards the nutritional care of elderly hospitalised patients were assessed, both before attending the seminar and after attending the seminar.

Results.

The analysis of the data collected in the period before attending the seminar on clinical nutrition versus those contained in the period after attending the seminar revealed the following: A) SANN-G Total Score (break point for a positive attitude ≥72 pt): 67.99±8.08 vs 70.25±8.02 (p=0.043); B) SANN-G Factors: a) Norms (≥20 pt): 17.52±3.33 vs 17.83±3.68 (p=0.297); b) Habits (≥16 pt): 14.52±2.27 vs 15.17±2.41 (p=0.045); c) Assessment (≥16 pt): 15.15±2.39 vs 16.08±2.72 (p=0.013); d) Intervention (≥12 pt): 11.87±2.15 vs 12.56±1.81 (p=0.017); e) Individualisation (≥8 pt): 8.93±1.56 vs 8.61±1.55 (p=0.105). Before attending the seminar, 25 students (33.3%) had positive attitude scores, 46 students (61.4%) had a neutral attitude, and four students (5.3%) had a negative attitude. After attending the seminar, 35 students (46.7%) had scores indicating a positive attitude, 37 students (49.3%) a neutral attitude and three students (4.0%) a negative attitude.

Conclusions.

Providing nutrition education to undergraduate nursing students can positively influence and improve their attitudes towards the nutritional care of elderly hospitalised patients.

COD. P002

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10572

INFLAMMATION AND UNVOLUNTARY WEIGHT LOSS IN THE PREDICTION OF MORTALITY IN OLDER PATIENTS UNDERGOING HEMODYALITIC TREATMENT.

D. Azzolino[1], S. Vettoretti[2], M.M. Poggi[3], A. Soldati [3], E. Consorti[3], L. Caldiroli[2], T. Lucchi[1], M. Cesari [4]

[1]*Geriatric Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico di Milano*

[2]*Unit of Nephrology, Dialysis and Kidney Transplantation, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico di Milano*

[3]*Specialization school in Geriatrics, Università degli Studi di Milano*

[4]*Department of Clinical Sciences and Community Health, Università degli Studi di Milano*

Introduction: Inflammation is indicated as a major determinant of aging (i.e., “Inflammaging”). It is also responsible for both the onset and progression of Chronic Kidney Disease (CKD). Indeed, older patients on hemodialysis can exhibit an increased level of circulating inflammatory markers, potentially contributing to the so-called “anorexia of aging”, a detrimental condition associated with malnutrition, frailty, sarcopenia, increased morbidity and mortality. Unintentional weight loss (UWL) and disease burden/inflammation have been included in the Global Leadership Initiative on Malnutrition (GLIM) criteria for the diagnosis of malnutrition as a phenotypic and etiologic criterion, respectively. This study was aimed at evaluating the association between inflammation and wasting syndrome, expressed as high levels of high-sensitive C-reactive Protein (hs-CRP) and UWL respectively, with mortality in a population of older patients undergoing hemodialytic treatment. Methods: Data are from a retrospective longitudinal study enrolling 107 older (aged 65 and older) patients under hemodialytic treatment. UWL was defined as the unvoluntary loss of body weight >5% in 3 months or >10% in 6 months. Hs-CRP was also measured and levels <0.5 mg/dL were used to define the normality range. Results: The mean age of the sample (women: 35%) was 79 (standard deviation 7.7) years. The median follow-up was 21 (interquartile range 8-32) months, during which 31 (29%) participants died. Fifty patients had hs-CRP levels ≥0.5 mg/dL and 18 experienced UWL. At univariate analysis, both high concentrations of hs-CRP (HR 2.96, 95% CI 1.32-6.61, p=0.008) and UWL (HR 3.68, 95% CI 1.72-7.89, p=0.001) were positively associated with death. These results were confirmed also when adjusting for age and sex (HR 2.89, 95% CI 1.39-6.00, p=0.004 and HR 3.94, 95% CI 1.81-8.57, p=0.001, for high hs-CRP and UWL, respectively). Patients presenting both UWL and high hs-CRP levels were those experiencing the worst outcomes in terms of mortality. Conclusion: The multidimensional evaluation of nutritional status is pivotal to better address the clinical complexity of older people undergoing hemodialytic treatment in order to prevent adverse outcomes.

COD. P003

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10609

Role of nutrition in the management of type I diabetes in children and adolescents aged 3-15 years

M. Papa[1], M. Pecoraro[1], L. Sorrenti[1], A. Caltabiano[2], S. Passanisi[1], G. Salzano, F. Lombardo[1]

[1]*U.O.C. di Pediatria- AOU Policlinico G.Martino*

[2]*Studentessa in Scienze della Nutrizione Umana LM-61 San Raffaele Roma*

Introduction

Type I diabetes is the most common metabolic disease in children and adolescents with an estimated incidence of around 10 %. In type 1 diabetes, the pancreas is not able to produce insulin due to the destruction of the ß cells and, consequently, insulin must be chronically replaced by exogenous daily administration. However, the rate of destruction of ß-cells is quite variable, thus the onset of the disease can occur quickly in some people, usually in children and adolescents, and more slowly in adults (in these rare cases is called LADA: Late Autoimmune Diabetes in Adults).The cause of type 1 diabetes is unknown, but the presence of specific antibodies, such as ICA, GAD, IA-2, IA2 and ZNT8 is well-known. This damage of insulin-producing cells induced by the immune system could be linked both to a genetic predisposition and environmental factors, including infectious diseases. Therapy is not only based on insulin administration but also on proper nutrition (which is mainly related to food quality other than quantity) and physical activity. A good quality of life can be achieved only if these therapeutic tools are simultaneously used.

Targets

The aim of this study was to asses eating habits of children and adolescents before and after the onset of diabetes and to identify any differences in sex, age and treatment.

Methods

At the Pediatric Diabetology Clinic of the General Hospital of Messina, the regional center of reference, it was considered a cohort consisting of 12 patients: 6 females and 6 males aged between 3 and 15 years; 4 females and 2 males were on Multiple Daily Injections (MDI) insulin therapy, of which one patient was also affected by celiac disease. The remaining subjects (4 males and 2 females), including one patient with celiac disease and Hashimoto thyroiditis were on continuous insulin injection infusion (CSII) therapy.The investigation revealed that their eating style was not always balanced, sometimes it was rich in fat and snacks were usually skipped due to fear of hyperglycemia. In addition to the collection of auxological data (weight, height),the quarterly follow-up visits, consist in the detection of blood pressure and the measurement of glycated hemoglobin (HbA1c) Patients are also trained to the concepts of healthy and correct nutrition, motor, emotional and food education applied to diabetes (nutritional principles, classification of sugars, dietary fiber, food pyramid, food portions, adequate motor activity, psycho-physical well-being).

Conclusion

Data of enrolled patients showed a marked improvement in glycemic control regardless the type of used therapy. Consequently, the role of therapeutic education leading the patient to acquire and maintain the skills and competences necessary to live optimally with the diabetic condition is even more important.

Bibliographywww.salute.gov.it

COD. P004

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10610

Food intake post bariatric surgery: monitoring and comparison of food craving in normal-weight and overweight women

A. Gammino

[1]*Farmacia Dott. Gammino Giuseppe P.zza D.A. Serra, 3 Lei (NU)*

The population suffering from obesity has rapidly increased worldwide, so much so that it is referred to by the World Health Organization (WHO) as the epidemic of the 21st century. Among the various methods used, bariatric surgery (BS) has proven to be an effective treatment for inducing long-term weight loss and reducing comorbidities and mortality in patients with severe obesity (BMI≥40). Alteration of the gastro-intestinal anatomy due to surgery results in neurological and physiological changes that affect hypothalamic signals, gastrointestinal hormones, and together exert a profound influence on eating behavior, affecting the sense of hunger, satiety, and food craving (strong desire to consume a certain food). Although BS has a low mortality rate, modest weight loss (5-10%) in the immediate preoperative period has been suggested as a means to facilitate surgery and reduce the risk of complications: it can be achieved with strict regimens, such as LCD (800-1200 kcal/day), VLCD (600-800 kcal/day) or VLCKD (600-800 kcal/day). The Mediterranean diet has also been shown to have a strong impact on surgical outcomes (such as pre-surgical and post-surgical weight loss), proving to be a useful dietary regimen for losing weight while maintaining lean mass.
A study was conducted on food craving (a concept predictive of dropping and regaining lost weight) featuring 21 women (average age 44 years). The common denominator required to be part of this work was that the time since surgery for patients treated with gastric banding or gastric bypass was at least 3 months. The chosen counterpart was a group of overweight women and a group of normal-weight women. They were asked to record the time of the craving episode on a questionnaire and to evaluate its main characteristics.It was interesting to understand the relationship between diet and food craving. Of 299 recorded episode, salty foods were found to be the most craved (40%), followed by chocolate (31%). Bariatric patients reported more episodes of craving and of greater intensity than their normal-weight counterparts but still similar to their overweight counterparts, and neither hunger nor moodiness was shown to distinguish post-bariatric patients from their counterparts participating in the study, nor the portion of food consumed (58%).
In conclusion, we can say that although long-term results cannot be predicted at present, bariatric surgery has nevertheless proven to be an effective treatment for reducing weight and also the phenomenon of food craving.

COD. P005

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10613

Breakfast quality and perceived psychological stress in Italian adults from the INHES Study

E. Ruggiero[1], C.F. Martinez[1], A. Di Castelnuovo[2], S. Esposito[1], S. Costanzo[1], C. Cerletti[1], M.B. Donati[1], G. De Gaetano[1], L. Iacoviello[1,3], M. Bonaccio[1]

[1]*Department of Epidemiology and Prevention, IRCCS NEUROMED, via dell'Elettronica, 86077 Pozzilli (IS), Italy*

[2]*Mediterranea Cardiocentro, Napoli, Italy*

[3]*Department of Medicine and Surgery, Research Center in Epidemiology and Preventive Medicine (EPIMED), University of Insubria, 21100 Varese-Como, Italy*

Background: Observational studies report an association of regular breakfast consumption with a healthier diet and lifestyle, and with a range of benefits, including better levels of well-being. We examined the associations between eating or skipping breakfast, and the quality of breakfast eaten with perceived psychological stress in Italians. Methods: Data were from the Italian Nutrition & Health Survey (INHES; 2010-2013) consisting of 8,091 participants (45.6% men, mean age 57.2±14.4 y). Dietary data were collected through a single 24-h dietary recall, and a validated food propensity questionnaire, including self-reported breakfast consumption as "regular" and "skipping or only coffee". Breakfast quality was assessed through the Breakfast Quality Index (BQI) combining intake of food groups, energy, and nutrients of public health concern. The BQI comprised ten items and potentially ranged from 0 to 10. Perceived psychological stress was assessed through three multiple-answer questions relating to stress at work, home, and financial stress that were used to compute a perceived psychological stress score ranging from 0 to 10; higher values reflect increasing psychological stress levels. Results: Regular breakfast consumers were 89.3% (n=7,228), while 10.7% (n=863) of participants used to skip breakfast. The average BQI in regular breakfast eaters was 4.66 (SD±1.14), the mean perceived psychological stress score of the study sample was 3.69 (SD±1.46). In multivariable-adjusted linear regression analyses controlled for potential confounders and overall diet quality, a 2-point increase in the BQI was inversely associated with the perceived psychological stress score (β= -0.06; 95% CI -0.11 to -0.01; p-value=0.025). Having breakfast regularly was not associated with perceived psychological stress (β= -0.03; -0.12 to 0.06; p-value=0.52 for regular breakfast consumers vs. breakfast skippers). Conclusions: Breakfast quality was inversely associated perceived psychological stress independent of overall diet quality among Italians. On the contrary, breakfast consumption was unrelated to perceived psychological stress. These findings highlight the importance of having a good breakfast quality, rather than just having breakfast, in relation to psychological well-being.

COD. P006

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10618

Possible biological activity of molecules derived from Olea europaea L., tested in vitro on immortalized embryo kidney cells, through the Incucyte technique.

C. Guerriero[1], G. Marrone[1], M. Di Lauro[1], C. Masci[1], S. Urciuoli[2], E. Sargentini[1], E. Candi[3], A. Noce[1,4]

[1]*Dep. of Systems Medicine, University of Rome Tor Vergata*

[2]*Dep. of Statistics, Informatics, Applications "G. Parenti" DiSIA, PHYTOLAB, University of Florence*

[3]*Dep. of Experimental Medicine, University of Rome Tor Vergata*

[4]*UOSD of Nephrology and Dialysis, Policlinico Tor Vergata, Rome*

Extra virgin olive oil (EVOO) is a typical food of the Mediterranean diet, obtained by Olea Europeae L. The EVOO' polyphenols have been studied for their protective role against non-communicable chronic-degenerative diseases, including cancer.

The aim of our in vitro study was to test extracts derived from Olea Europeae L. leaf waste, in order to evaluate their potential pro-apoptotic and anti-proliferative capacity on a cell line of immortalized embryo kidney cells (HEK293E), through the Incucyte S3 Live-Cell Analysis System (Incucyte). In particular, we tested hydroxytyrosol (HT) and oleuropein action, at different concentrations and for different hours, on the HEK293E cell line. The tested extracts were analyzed qualitatively-quantitatively by HPLC/DAD/MS for the evaluation of the secondary polyphenolic metabolites content.

The real-time observation of the cellular dynamics was made possible thanks to the use of the Incucyte, which is able to quantitatively analyze the cell proliferation and death. These parameters were monitored using a non-toxic fluorescent dye reagent, specific for the nuclei of live cells, called "NucLight Rapid Red Reagent". Additionally, apoptosis was quantified and analyzed using the IncuCyte Caspase-3/7 reagent, which binds to activated caspase 3/7 and emits a fluorescent signal.

The in vitro study highlighted that the olive leaf extracts are able to inhibit the cell growth of the HEK293E cell line. The inhibition of cell proliferation observed does not seem to be linked to the cytotoxicity of the tested extracts. In particular, we highlighted that the HT extract at 50 µm is able to inhibit cell proliferation significantly compared to the control (DMSO), $p<0.001$, while the other tested extracts, such as oleuropein 50 µm and extract of Olea at 20 µm and 40 µm, have an activity similar to DMSO. Regarding the apoptosis, analogous results were observed, i.e. only the HT 50 µm extract would seem to exert a pro-apoptotic action compared to DMSO, $p<0.001$. The results obtained on the HEK293E cell line confirmed the anti-proliferative and pro-apoptotic action of the minor polar compounds of EVOO, highlighting their potential beneficial action as adjuvant treatment.

COD. P007

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10622

Dietary polyphenols and risk of central nervous system tumors: a preliminary case-control analysis from the MEditerranean DIet in relation to CancEr of brAin (MEDICEA) Study

S. Esposito[2], M. Bonaccio[2], E. Ruggiero[2], S. Costanzo[2], A. Di Castelnuovo[1], V. Esposito[4], G. Innocenzi[4], S. Paolini[4], C. Cerletti[2], M.B. Donati[2], G. De Gaetano[2], L. Iacoviello[2,3]

[1]*Department of Epidemiology and Prevention, IRCCS Neuromed, Pozzilli (IS), Italy*

[2] *Mediterranea Cardiocentro, Napoli, Italy*

[3]*Department of Neurosurgery, IRCCS Neuromed, Pozzilli, Italy*

[4]*Department of Medicine and Surgery, Research Center in Epidemiology and Preventive Medicine (EPIMED), University of Insubria, Varese-Como*

Background: Environmental risk factors, including diet, might have an important role in the etiopathogenesis of central nervous system (CNS) tumours. Polyphenols are naturally occurring compounds endowed with antioxidant and anti-inflammatory properties and their beneficial effects against several pathological diseases including cancer are well-established. However, a limited number of studies analysed these natural compounds in relation to CNS tumours. We therefore sought to test the relationship between dietary polyphenols intake and risk of CNS tumours.

Methods: Participants with a diagnosis of CNS tumours were recruited from the Neurosurgery Unit of the IRCCS Neuromed, Italy, and underwent anthropometric, clinical and anamnestic assessments. The study sample included 44 cases of CNS tumours, and 88 controls matched 1:2 for sex (exact match) and age (±10 year), without any clinical evidence of CNS tumours, identified from the Moli-sani Study cohort. Dietary polyphenol intake was calculated by matching food consumption data from a 188-item food frequency questionnaire with the Phenol-Explorer database providing the polyphenol content of each reported food.

Results: The mean age of study participants was 54.3 y (±13.5), 40.9% were women. In a multivariable-adjusted logistic regression analysis including the Mediterranean Diet Score, a 1-standard deviation more in total dietary polyphenols intake was associated with lower odds of CNS tumours (OR= 0.49, 95%CI 0.26-0.92); in particular, lignans, phenolic acid and stilbenes were inversely associated with the outcome (OR= 0.51; 0.28-0.95, OR= 0.45; 0.21-0.95 and OR= 0.39; 0.18-0.86; respectively).

Conclusions: A high consumption of polyphenols was associated with lower risk of CNS tumours, independent of the overall diet quality. These results add to the existing literature by expanding knowledge on the association between diet and CNS tumour risk. However, our findings are not conclusive, especially due to the small sample size and the limitation of a case control design, but may serve as a useful starting point for future investigations.

COD. P008

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10626

Nutritional Inflammatory Index (NII) Project: towards the development of a NII score

M. Ramal-Sanchez[1], F. Pietrangeli[1], D. Pelusi[2], D. Angelino[1], M. Serafini[1]

[1]*Functional Food and Metabolic Stress Prevention Lab, Dept. of Biosciences and Technology for Food, Agriculture and Environment, University of Teramo*

[2]*Dept. of Communication Sciences, University of Teramo*

Over the last years, our society has assisted to a considerably increase in the incidence of chronic metabolic diseases, mainly derived from alterations of the redox and immune systems. On these bases, “immunonutrition”, i.e., the potential of specific foods and diets to modulate the activity of the immune system at intestinal, tissular and systemic levels, has been proposed as a powerful tool to reverse or ameliorate specific pathological conditions. However, despite its fundamental importance in terms of diseases prevention, the anti-(pro)-inflammatory role of foods and diets has not been defined yet.

The Nutritional Inflammatory Index (NII) Project is aimed at investigating the role of diet, recipes and single foods in the modulation of the inflammatory response in humans. The NII Project will include to: a) evaluate the immunomodulatory and anti-(pro)-inflammatory properties of foods and recipes; b) provide a score describing the immunomodulating properties of foods and recipes; and c) furnish with reference values associated to healthy eating patterns.

To accomplish these aims, the NII project will consider in vitro, in vivo and in silico approaches. In fact, selected foods and recipes will be cooked and undergo in vitro digestion processes, and the digesta will be incubated with a human triple cell culture model approximating the physiological conditions of the intestinal epithelium. Then, supernatants will be assayed for the modulation of specific cytokines involved in inflammatory processes, allowing the creation of an algorithm using artificial intelligence techniques and thus generating the NII scores. Finally, by considering the whole individual diet, it will be possible to sort out the NII values describing the healthiness of different dietary patterns.

The obtained results are expected to implement the knowledge in the immunonutrition field, representing a useful tool for both epidemiological and in vivo intervention studies in larger cohorts of individuals, with the focus on the correlation between inflammatory processes and the overall health status. Preliminary results regarding the in vitro approaches will be presented, as well as the first experimental applications of the model.

COD. P009

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10627

Nutritional profile and dietary fibers of two Italian genotypes of globe artichoke: a way to characterize local and functional products

S. Lisciani[1], A. Aguzzi[1], P. Gabrielli[1], E. Camilli[1], L. Gambelli[1], F.J. Comendador Azcarraga [1], S. Marconi[1]

[1]*Council for Agricultural Research and Economics, Research Centre for Food and Nutrition, Rome*

Globe artichoke (Cynara cardunculus (L.) subsp. scolymus) is a perennial plant widespread in the Mediterranean basin, especially in Italy thanks to presence of numerous local genotypes, often cultivated by small producers and farmers. Globe artichoke is grown and appreciated in many regions of the world for their organoleptic and nutritional characteristics; indeed, this vegetable crop is an excellent source of bioactive compounds, minerals, vitamins, inulin and dietary fiber. Thanks to their composition, the artichoke flower heads have hepatoprotective, hypocholesterolemic and antioxidant properties, and may be considered a functional food. In this research were collected and studied 11 samples of globe artichokes cultivated in in different areas of Abruzzo, Molise and Marche regions, belonging to Mazzaferrata ecotype and Montelupone variety. After appropriate sampling, artichokes were analysed for the content of water, proteins, lipids, carbohydrates and for total, soluble and insoluble dietary fibers. Chemical analyses were conducted using Official Methods of the Analysis; the soluble fiber was calculated as the difference between total fiber and the insoluble fraction. Between results, the content of total dietary fiber showed an average value corresponding to 7.5 g/100g for Montelupone and 7.2 g/100 g for Mazzaferrata. Considering a standard portion of globe artichokes, corresponding to 200 grams of raw products, both Mazzaferrata and Montelupone genotypes cover more than half of the desirable daily value of total fiber (25 grams per day), with a contribution of 60% and 58% respectively. The insoluble fiber content obtained was 4.7 g/100g for Montelupone and 4.0 g/100g for Mazzaferrata, with statistically significant differences between them, while the calculated value for soluble fiber corresponds to 2.8 g/100g for Montelupone and 3.2 g/100g for Mazzaferrata. These data highlight that both genotypes are a good source of dietary fibers that have different essential roles: promotion of intestinal function, regulation of microbiota composition, reduction of fat and sugar absorption, increase of satiety. The artichokes studied represent a model of local resources, and nutritional characterization is the first step for their promotion as a functional, economical, and versatile foodstuff.

COD. P010

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10628

Sustainable foods and climate change: study of mineral content in drought-resistant bean lines – BIO-BELIEF project

S. Lisciani[1], A. Aguzzi[1], E. Camilli[1], P. Gabrielli[1], L. Gambelli[1], M. Ferrari[1], C. Le Donne[1], A. Losa[2], T. Sala[2], E. Cominelli[3], F. Sparvoli[3], K. Kunert[4], S. Marconi[1]

[1]*Council for Agricultural Research and Economics, Research Centre for Food and Nutrition, Rome, Italy*

[2]*Council for Agricultural Research and Economics, Research Centre for Genomics and Bioinformatics, Montanaso Lombardo, Italy,*

[3]*National Research Council, Institute of Agricultural Biology and Biotechnology, Milan, Italy,*

[4]*Department Plant and Soil Sciences, Forestry and Agricultural Biotechnology Institute, University of Pretoria, Pretoria, South Africa*

Common bean (Phaseolus vulgaris L.) is a legume produced and consumed all over the world, thanks to its versatility in preparation, and nutritional benefits. Beans are rich in protein, fiber, vitamins, minerals and bioactive compounds, and are characterized by an amino acid profile complementary to that of cereals, contributing to well-balanced plant-based diets. In addition, beans provide multiple advantages in cultivation systems and represent a strategic food in sustainable diets. So, beans have a beneficial role on human health and can mitigate the effects of climate change, i.e. the water deficit of the soil caused by drought, representing one of the major factors in limiting the production of crops, with consequences on food security. To this end, in recent years efforts have been made to develop new bean genotypes resistant to climatic stress and/or with low antinutritional factors to increase the micronutrient bioavailability. In this preliminary phase of a multidisciplinary international project, 4 experimental/commercial bean lines, carrying traits of nutritional interest or drought/ heat tolerance, were studied for their mineral content. Four samples: Meccano, BAT 93, BAT 881 and hip 1 were soaked in distilled water for 17 hours and then boiled. After freeze-drying, macro-elements (Na, K, Ca, Mg, P) and trace-element (Fe, Cu, Zn, Mn) contents were determined by ICP-Plasma after liquid ashing in a microwave digestion system. The results have shown that the highest mineral content is contained in the commercial sample Meccano (Heat tolerant trait) which showed a great content of potassium (300 mg/100g f.w), sodium (3 mg/100g f.w) and phosphorus (128 mg/100g f.w). The line with the highest content of iron (2.4 mg/100g f.w) and calcium (80 mg/100g f.w) values is BAT 881, a genotype characterized by the lack of α-amylase inhibitor. The highest values of Zn (1.2 mg/100g f.w) were instead found in the wild-type control line BAT 93 and in the hip 1 mutant (high inorganic phosphate). These data, together with those that will come from other bean lines characterized by the lack of antinutrients such as phytic acid, will allow to select lines of biofortified and drought resilient beans, which can be used in sustainable and high nutritional quality recipes.

COD. P011

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10632

Easy and smart nutritional guidelines for high school teenagers.

L. Costantini[1]

[1]*Dip. Scienze Ecologiche e Biologiche, DEB, Università degli Studi della Tuscia*

Evidence shows that following the COVID-19 pandemic the incidence of eating disorders increases up to 15.3% in comparison to previous years, and primarily afflicting teenagers through anorexia nervosa (Taquet et al., 2021). At the same time, in Italy, only one high school course (i.e., Hotel Management Schools) provides food education in the ministerial study program. For this reason, the present third mission program founded by Tuscia University in Viterbo, had as its goal, the dissemination of nutritional guidelines for healthy eating among the high school teenagers. The modalities included, in addition to a in-presence seminar up to one hour long, the distribution of a pocket booklet with a summary of the nutritional guidelines from CREA (Food and Nutrition Research Center of the Council for Agricultural Research and Analysis of Agricultural Economics, Italy) which students can take home and share with families. The seminars and the booklet intend to make the guidelines more accessible to teenagers by summarizing them in 10 short steps and with the help of stylized and intuitive icons. The mission, currently underway, has so far involved about 1650 students from 16 different institutes mainly located in the central Italy. From a short questionnaire submitted to the students it was highlighted that, for example, 42.2% did not eat five portions of fruit and vegetables a day because they did not know this guidelines' recommendation. Similar percentages were found in relation to the lack of knowledge of the recommendations of drinking 2 L of water/day (39%) or about the lingering danger of drinking alcohol (37.4%). Finally, the brief intervention demonstrated a great impact on the students' awareness considering that among the students who previously did not eat 5 portions of fruit and vegetables per day, 37.4% answered that following the seminar they will. This indicates that although this is a small action, it can positively influence students' awareness of healthy eating guidelines and in the perspective to be a further step to permanently bring food science into all schools.

COD. P012

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10636

Ketogenic dietary therapies for epilepsy and other neurological diseases: A proposal to implement an adapted model to include healthy Mediterranean products

M. Guglielmetti [1,2], C. Ferraris[1,2], L.d.C. Lopes Neri [1], S. Allehdan[3], J.M. Mohsin Albasara [3], H.H. Fareed Alawadhi [3], C. Trentani[1], S. Perna [4], A. Tagliabue[1]

[1]*Lab. di Ricerca sulla Terapia Metabolica Chetogenica, Università di Pavia*

[2]*Lab. di Educazione Alimentare e Nutrizione Sportiva, Università di Pavia*

[3]*Dip. di Scienze, University of Bahrain*

[4]*Dip. di Scienze per gli Alimenti, la Nutrizione e l'Ambiente (DeFENS), Università di Milano*

KDTs have demonstrated efficacy for treating drug-resistant epilepsy in children and adults. They are the first line treatment for rare neuro-metabolic diseases such as GLUT1-DS for which constitutes lifelong treatment and there is accumulating evidence for several other neurological diseases. There are four types of KDTs (classical ketogenic diet, modified Atkins diet, Medium Chain Triglycerides ketogenic diet, Low Glycemic Index Treatment) characterized by a very high fat content (ranging from 60 to 90 % of energy) which is mandatory both to achieve a high ketosis level and to reach the energy requirements of the patients, avoiding weight loss. Although the documented benefits of KDTs in the control of epilepsy and other neurological diseases, several adverse effects have been described during long-term KDT such as hyperuricemia, hyperlipidemia, kidney stones and delayed growth in children. Among these effects, the most common clinical manifestation observed in the studies is dyslipidemia. It is well known that the amount and quality of fat may impact on lipid profile and cardiovascular risk and therefore the composition of the diet needs to be carefully studied especially for long-term therapies. We suggest the adoption of a Mediterranean version of ketogenic diets in order to benefit from the multiple protective effects of MD. This can be summarized in (i) a preferential use of vegetable fat sources in general, especially olive oil, (ii) the limitation of the foods rich in SFA, (iii) the encouragement of HBV protein sources, (iv) the presence of fruit and vegetables at every meal, when possible, varying their choices according to seasonality. Moreover, MD strengthens traditional, local, eco-friendly and biodiverse products, which are to be privileged also in the KDTs. These suggestions are particularly useful for patients at risk of dyslipidemia. This proposal is based on products available in Italy but may constitute the basis for planning planetary Mediterranean versions of KDTs taking into consideration local products available in different world countries.

COD. P013

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10638

Malnutrition in patients undergoing colonoscopy in an outpatient setting of an European population

F. Busin[1], A. Ferronato[2], K.I. Rodriguez-Castro[2], M. Franceschi[2], L. Brozzi[2], L. Cuoco[2], G. Baldassarre[2], F. Sofi[3]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy*

[2]*Digestive Endoscopy Unit, AULSS7 Pedemontana, Santorso (VI), Italy*

[3]*Unit of Clinical Nutrition, Careggi University Hospital, 50134 Florence, Italy*

Background. Although the obesity pandemic represents an enormous burden in the Western world, malnutrition, which is often overlooked, is associated with increased morbidity and mortality. The frequency of malnourished patients undergoing colonoscopy (CS) is not known, and neither the prevalence of DD nor its severity have been established in this subgroup of patients.

Aim. To determine the prevalence and degree of malnutrition in outpatients undergoing CS, and explore the correlation between DD and its severity.

Materials and methods. All patients undergoing CS at our Endoscopy Unit in Northeastern Italy from January to June 2022 were voluntarily asked to complete a questionnaire including: body mass index (BMI), weight loss in the past month, reduction of food intake in the past week, age, and the presence of comorbidities. The validated NSR2002 and MUST scores were calculated from data collected, and confronted with endoscopic results (presence or absence of DD and its severity determined by the Diverticular Inflammation and Complication Assessment - DICA classification).

Results. Study population was 1112 patients. Overall, although half of the population was obese/overweight, BMI was below 18 in 1.8% of all patients. DD was found in 36%, and mean MUST and NSR2002 scores were similar between patients with or without DD. Among patients without DD, 10.2%, 6.3% are at moderate (MUST 1) or high (MUST≥2) risk of malnutrition, respectively, whereas according to NSR2002, 0.5% are at very high (score 3) risk of malnutrition. Among patients with DD, 7.6% and 5.9% were at MUST 1, MUST≥2, respectively, whereas according to NSR2002, 0.5% were at score 3. Amongst patients with DD, higher scores of malnutrition were observed in patients with greater severity of DD; mean NSR2002 scores were 0.099 and 1.67 in DICA1 vs DICA3 patients, respectively, while mean MUST scores were 0.175 and 0.458 in DICA1 vs DICA3 patients, respectively.

Conclusions. An elevated risk for malnutrition is present in a fraction of the population undergoing CS, and in patients with DD tends to increase parallel to severity of DD. Larger, prospective studies are necessary to determine the strength of the associations found and the impact of malnutrition on DD outcomes.

COD. P014

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10639

Comparative analysis of dietary and lifestyle habits between patients with and without diverticular disease

A. Ferronato[1], F. Busin[2], K.I. Rodriguez-Castro[1], M. Franceschi[1], L. Brozzi[1], L. Cuoco[1], G. Baldassarre[1], F. Sofi[3]

[1]*Digestive Endoscopy Unit, AULSS7 Pedemontana, Santorso (VI), Italy*

[2]*Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy*

[3]*Unit of Clinical Nutrition, Careggi University Hospital, 50134 Florence, Italy*

Background. A sedentary lifestyle, poor fiber intake and other unhealthy dietary habits have been associated with diverticular disease (DD). On the contrary, Mediterranean Diet (MD) is suggested to protect against DD.

Aim. To compare adherence to MD in subjects with and without DD.

Materials and methods. All patients undergoing colonoscopy at our Endoscopy Unit in Northeastern Italy from January to June 2022 were invited to participate in the study, completing three questionnaires including personal/medical history and medications, symptoms, physical activity questionnaire, and Medi-Lite questionnaire for the assessment of adherence to MD.

Results. 1112 patients completed the questionnaires. Overweight (BMI>25 kg/cm2) was observed in 61% of males and 40.2% of females, and correlated inversely with higher education attainment, daily physical activity of at least 30 minutes, and, in females, the performance of a structured physical activity/sport for at least 60 minutes a week. Moreover, being married or widowed and consuming meals preferably at home, as opposed to consuming meals at restaurants or cafeterias, were significantly associated with overweight, especially in female patients. In the overall population, normal weight was more frequently associated with consumption of meat, while in females, it is associated with greater consumption of raw vegetables. Overweight was more frequently associated with consumption of salami and cheese, especially in the female population, and it correlated with the presence of cardiovascular diseases (especially hypertension). DD was present in 400/1112 (35.9%) of subjects and this condition was significantly associated with male sex, older age (61-75 years), overweight, cardiovascular disease, polypharmacy, cigarette smoking, alcohol use, cheese consumption, abdominal pain as the chief complaint, and lower education attainment. No correlation was found between DD and the MD score or its components. In patients with DD, an elevated MD score and consumption of meat and legumes was inversely and significantly associated with abdominal pain.

Conclusions. Subjects undergoing colonoscopy share similar dietary and lifestyle habits, while in the presence of DD, ingestion of certain products seems to have an impact on symptoms.

COD. P015

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10640

Do compliance to the Mediterranean Diet and lifestyle habits have an impact on the severity of diverticular disease?

A. Ferronato[1], F. Busin[2], K.I. Rodriguez-Castro[1], M. Franceschi[1], L. Brozzi[1], L. Cuoco[1], G. Baldassarre[1], F. Sofi[3]

[1]*Digestive Endoscopy Unit, AULSS7 Pedemontana, Santorso (VI), Italy*

[2]*Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy*

[3]*Unit of Clinical Nutrition, Careggi University Hospital, 50134 Florence, Italy*

Background. Diverticular Disease (DD) is a frequent condition in Western populations. Severity of DD and its association with prognosis in relation to surgery using the Diverticular Inflammation and Complication Assessment (DICA) classification has been validated. Mediterranean Diet (MD) and healthy lifestyles have been advocated as possible protective factors against several diseases as well as DD. Aim. to evaluate the relationship between the prevalence and severity of DD and adherence to MD.

Methods. All patients diagnosed undergoing colonoscopy at our Endoscopy Unit in Northeastern Italy from January to June 2022 were invited to complete 3 questionnaires on medical history and medications, symptoms, physical activity and Medi-Lite (ML) questionnaire. Subjects with DD were then divided into three severity groups (DICA 1, 2, 3).

Results. Out of 1112 patients, 400 patients had DD, of whom 252, 123, and 25 were DICA 1, 2, and 3, respectively. Significantly ($p<0.05$), greater severity of DD (DICA 2 and 3) correlated with female sex (OR 1,459), older age (OR 1,047), greater frequency of symptoms (diarrhea OR 2,584; pain OR 1,602), greater NSAIDs use (OR 1,579), a more dynamic lifestyle (OR 1,113), food allergy (OR 1,889), lower ML score (mean 8,51±2,03), lower grade of instruction (OR 0,837), lower intake of legumes (OR 0,998), higher intake of meat (OR 1,001), cereals (OR 1,015) and vegetables (OR 1,001). Abdominal pain in patients with DICA 2-3 correlated with meal consumption before bedtime or napping (OR 0,348). While intake of beverages with added sugar was associated with abdominal pain (OR 2,476), this was actually the contrary in DICA2 patients (OR 0,268). 60,39% of DICA 1-3 patients were overweight/obese, as opposed to DICA 3 patients, who exhibited a normal or reduced in 49.0% and 6.1%.

Conclusions. Modifiable factors such as body weight and diet/lifestyle changes are associated with severity of DD, which underlines the importance of further, prospective studies to evaluate the impact of MD on preventing DD or at least avoiding its progression to more severe grades of DD. ML score is useful to strengthen the change in dietary and lifestyle habits in patients, but an accurate evaluation of single food use is needed to formulate an individualized diet.

COD. P016

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10641

Association between adherence to Mediterranean Diet and multiple sclerosis in a group of Italian patients

M. Guglielmetti [1,2], C. Ferraris [1,2], S. Fiorini [1,2], R. Bergamaschi[3], E. Tavazzi [3], A. Tagliabue[1]

[1]*Centro di Ricerche sulla Nutrizione Umana e i Disturbi del Comportamento Alimentare, Università di Pavia*

[2]*Lab. di Educazione Alimentare e Nutrizione Sportiva, Università di Pavia*

[3]*Fondazione Neurologica IRCCS Casimiro Mondino, Pavia*

Introduction: Multiple sclerosis (MS) is a complex, immune-mediated and inflammatory disease of the central nervous system, characterized by multifocal demyelinated plaques within the brain and spinal cord. The role of diet in this disease is still unclear. Recent studies and reviews reported a potential beneficial effect of Mediterranean Diet (MedDiet) on several MS parameters, such as fatigue, disease severity and disability. Aim: to investigate whether adherence to MedDiet was associated with MS severity. Methods: Inclusion criteria were (i) age>18 years, (ii) relapsing remitting or secondary progressive MS diagnosis. Demographic, neurological and nutritional data were collected. Physical activity and smoking habits were also investigated. Adherence to MedDiet and MS severity were evaluated through the MEDI-LITE score and the Multiple Sclerosis Severity Score (MSSS), respectively. Participants were categorized in 3 groups (low/medium/high adherence) according to their adherence to MedDiet. Results: Out of the 130 participants enrolled, 106 patients were eligible for the analysis. Patients with higher MEDI-LITE score had a 6.18 times (95% C.I [1.44, 26.59]) higher probability of having a less severe form of MS compared to those with low MEDI-LITE score. Patients with low MedDiet adherence consumed significantly less fruit (<2 portions/day), vegetables (<1 portion/day), cereals and whole grains (<2 portion/day), fish (<2 portions/week) and olive oil (<1 portion/day) and had lower energy, macro and micronutrients intakes. Conclusion: these data support the possible beneficial effects of MedDiet on MS but they should be confirmed by further intervention studies.

COD. P017

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10644

Validation of an Italian Questionnaire of Adherence to the Ketogenic Diet (iKetoCheck)

L.d.C.L. Neri[1,2], M. Guglielmetti[2], V. De Giorgis[3], L. Pasca[3], M.P. Zanaboni[3], C. Varesio[3], C. Trentani[2], E. Ballante[3], S. Grumi[3], A. Tagliabue[2], C. Ferraris[2]

[1]*Faculdade de Medicina, Dep. de Pediatria, Universidade de Sao Paulo, Sao Paulo, Brazil*

[2]*Lab. di Ricerca sulla Terapia Metabolica Chetogenica, Università di Pavia*

[3]*Fondazione Neurologica IRCCS Casimiro Mondino, Pavia*

Introduction: Ketogenic dietary treatments (KDTs), an effective and safe non-pharmacological treatment for drug-resistant epilepsy, are hyperlipidic (65-90% of daily energy) and hypo-glucidic regimens. Long-term adherence to treatment with KD is often difficult for the patient and for caregivers, especially during adolescence. In Europe, there are no adequate tools to measure adherence to the diet, other than monitoring ketosis. Aim: The objective of this study is to adapt and validate the Brazilian adherence questionnaire Keto-check into the Italian version: iKetoCheck. Methods: The questionnaire translated and adapted into Italian reality, was submitted to Delphi technique, with 12 judges to validate the contents through the agreement rate and the Content Validity Index (CVI). The questionnaire was self-completed electronically by drug-resistant epilepsy or GLUT1 deficiency patients within an interval of 15 days to measure its reproducibility. The ketonemia was also reported to check the association between categorization of questionnaire and ketonemia. Factorial analysis (exploratory and confirmatory) was made using Factor software. The test-retest reliability evaluated by Pearson correlation and relative significance test was performed using the SPSS and the significance level was determined by 5%. Results: The final tool consists of 10 questions with 5 points Likert scale answers regarding: reporting the diet to family, organization of meals out home, measurement of ketosis, weighing food consumed, diet negligence, use of carbohydrate-free medications, attend follow-up visits, read processed food labels, consulting an expert for dietary concerns, cooking at home. The factorial analysis resulted in three factors: “attention”, “organization”, “precision” with satisfactory results for indices in exploratory and confirmatory analysis. Although higher mean values of ketonemia measurement are observed in patients with a higher adherence score, these values are not statistically significant (p=0.284). Conclusion: iKetoCheck is a valid instrument for the Italian population in order to measure the adherence to ketogenic therapy in drug-resistant epilepsy or GLUT1 deficiency patients.

COD. P018

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10645

Designing of a healthy diet at lower greenhouse gas emission through the optimization of food consumption observed in a sample of italian adolescents

G. Catasta[1], M. Alberti[2], A. De Santis[3], L. Benvenuti[3], R. Piccinelli[1], M. Ferrari[1]

[1]*Research Centre for Food and Nutrition, Council for Agricultural Research and Economics, Rome, Italy*

[2]*Pharmaceutical Sciences. Department University of Perugia, Perugia, Italy*

[3]*Department of Computer, Control, and Management Engineering Antonio Ruberti, Sapienza University of Rome, Rome, Italy*

Background: climate change is a global problem for the immediate future of humanity. The scientific world agrees that the origin of these changes is the greenhouse gas emission (GHGE) produced by human activities, causing the global temperature to rise. A suggested approach to reduce GHGE by food production is to reduce the animal products intake, which can lead to incomplete coverage for some nutrients, especially for target groups. The present study aimed to develop a healthy, low GHGE dietary pattern for an Italian adolescent's sample based on observed intake. Method: linear programming was used to construct a healthy optimized diet from observed food consumption data (INRAN-HELENA 2006-2007 Survey) to minimize GHGE. The program is based on dietary goals, and acceptability constraints as well as nutrients requirements. Result: diet optimization resulted in a GHGE reduction by 70% for males (5.8 vs. 1.6 Kg CO2eq) and by 50% for females (3.8 vs. 1,2 Kg CO2eq). In both sexes, the daily intake of the optimized diet is at the lower bound established for cholesterol, calcium, and fiber, and at the upper bound established for lipids, protein, and vitamin C. Only in males, iron intake is at the upper bound. Red meat daily amount is at the lower bound for females (5.6 g/day) and 0 g/day for males while fruit amount is at the upper bound (195.1 g/day and 160.9 g/day for males and females, respectively). On the other hand, the fish daily amount is 0 g/day for males and 0.58 g/day for females. This is due to low consumption in the observed diet leading to a value of 0 g/day at both, 5th and 90th percentiles. The potatoes' daily amount corresponds to the 90th percentile (117.6 g/day and 121.2 g/day for males and females, respectively) and the legumes' daily amount corresponds to the 90th percentile only for males (42,5 g/day). Conclusion: the optimized diet with lower GHGE consists of low consumption of meat, fish, and processed foods and increased consumption of legumes, potatoes, and fruit with respect to the observed diet. The optimized diet does not consider main food groups such as fish due to the low consumption found in the observed diet, leading the mathematical approach to be optimal in considering the main food groups if the starting diet is not too unbalanced.

COD. P019

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10646

Food choices of workers in a hospital canteen: sustainability and nutritional evaluation

F. Fiori[1], D. Menis[1], D. Zago[1], P. Cautero [1], L. Lesa[2], L. Brunelli[1,3], M. Parpinel[1]

[1]*Department of Medicine, University of Udine, Udine*

[2]*Clinical Management Staff, Hospital "Santa Maria della Misericordia", Friuli Centrale Healthcare University Trust, Udine*

[3]*Accreditation, Quality, and Clinical Risk Unit, Friuli Centrale Healthcare University Trust, Udine*

Background: food choices play a critical role in human and planetary health. While plant-based foods are known to be sustainable, beef has by far the greatest impact on the environment. The aim of this work was to evaluate the sustainability and nutritional profile of food choices made by workers in a hospital canteen in northeastern Italy.

Methods: we photographed the meals (canteen trays, CTs) of all the workers who ate lunch at the hospital canteen in Udine (Italy) on 5 working days in August 2022 and gave their consent to participate. We estimated carbon (CF) and water (WF) footprints using the SU-EATABLE LIFE database[1], and energy and nutrient content using the Italian Food Composition Database for Epidemiological Studies[2]. Recipes and portion sizes were provided by canteen staff.

Results: we analyzed 798 meals. Half of the participants were women and half were men aged 22 to 66 years (median=42). Meals contained a median of 795 (652—963) kcal/CT of which 22 (18—25) %En came from proteins, 32 (25—40) %En from fats, and 45 (38—52) %En from carbohydrates. The median CF and WF were 1264 (889—2136) g CO2eq./CT and 1151 (855—1694) LH2O/CT, respectively. Men's CTs were higher in energy (908 vs. 799 kcal), CF (1476 vs. 1173 g CO2eq./CT), and WF (1303 vs. 1151 L H2O/CT) than women's CTs ($p<0.001$), with men more likely than women to choose a second course with meat (51% vs. 41%). Vegetarian meals (N=122; 63% of women) had higher fats and saturated fatty acids (37 vs. 31 and 15 vs. 8 %En/CT) and lower proteins (16 vs. 22 %En/CT), CF (989 vs. 1413 g CO2eq./CT), and WF (941 vs. 1313 L H2O/CT) than omnivorous meals ($p<0.001$).

Conclusion: meals were overall balanced in macronutrients but high in CF and WF, especially in men. This may be due to the frequent beef-based meals offered throughout the week. In addition, vegetarian choices were generally poor, as meat was usually replaced with cheese and there was a lack of offering of suitable plant-based meat alternatives. Interventions are needed to improve sustainability and raise awareness on sustainable food choices, targeting both workers and canteen services.

1 Petersson et al. Scientific Data. 2021, 8:127.

2 Gnagnarella et al. libreriauniversitaria.it edizioni, Padova, 2022.

COD. P020

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10649

Potential of sprouted bean flour as a new ingredient for the formulation of bakery products

S.M. Borgonovi[1], A. Sergiacomo[1], S. Iametti[1], A. Marti[1], M. Di Nunzio[1]

[1]*Department of food, Enviromental and nutritional Sciences (DeFENS), Università degli Studi di Milano*

Legumes, due to their good climate resilience and well-balanced nutritional profile, are widely grown and used worldwide as human food. Legumes contain many bioactive compounds that have a positive role in preventing a broad range of diseases. However, legumes also contain anti-nutritional factors such as protease inhibitors, phytates, and some low digestibility di/oligosaccharides, that impair their extensive consumption in staple food. Various biotechnological processes have been tested as for overcoming one or more of the limitations mentioned above. In several grains and legumes, sprouting was used to improve the macromolecular profile, decrease the levels of anti-nutritional factors and/or generate/release bioactives. Among legumes, cowpea (Vigna unguiculata) is a versatile and sustainable crop, and represents a good candidate for developing novel processes and products. This study aims to investigate the impact of short time sprouting (48 and 72 hours) on cowpea seeds. Short sprouting modified the protein pattern, with an improvement in properties required for formation of a protein network. Sprouting also led to a decrease of anti-nutritional factors and of species able to sequester micronutrients, while improving phenolic content with possible antioxidant activity. These results indicate that sprouted cowpea flour may represent a food ingredient with added nutritional and technological value. This hypothesis is being tested through the ongoing characterization of wheat bread containing 25% of sprouted cowpea flour.

Acknowledgment: This investigation is partially supported by National Recovery and Resilience Plan (NRRP), Mission 4 Component 2 Investment 1.3 - Call for tender No. 341 of 15/03/2022 of Italian Ministry of University and Research funded by the European Union – NextGenerationEU, in the frame of the project: Research and innovation network on food and nutrition Sustainability, Safety and Security (ONFoods).

COD. P021

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10652

Adherence to the Mediterranean diet and its food groups consumption in a sample of over than 10,000 Italian adults

S. Lotti[1], M. Dinu[1], G. Pagliai[1], M. Tristan Asensi[1], A. Napoletano[1], I. Giangrandi[2], B. Colombini[1], F. Sofi[1,2]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Italy*

[2]*Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*

Background: Adherence to the Mediterranean diet (MD) has been shown to promote health and reduce the prevalence of several chronic diseases. However, to date, more and more countries in the Mediterranean basin seem to be moving away from their traditional eating habits, including Italy. Therefore, the aim of this study was to investigate adherence to the MD and consumption of its food groups in a large sample of Italian adults.

Methods: The data were obtained from accesses to http://www.medi-lite.com from January 2019 to December 2022. After removal of duplicates, the study sample comprised 10,916 questionnaires of which 7,088 were completed by women (65%) and 3,828 by men (35%). The dietary intake of each food group component in the questionnaire was estimated by multiplying the frequency by the portion size.

Results: The mean Medi-Lite score was 12 ± 2.5, suggesting a moderate level of MD adherence, with a significantly ($p<0.05$) higher level of adherence observed in women and older subjects. The analysis of the consumption of the individual food groups showed consumption in line with the national dietary recommendations of fruit (342 g/day), pasta (96 g/day), white meat (302 g/week) and fish (296 g/week). On the other hand, a low consumption of vegetables (270 g/day), bread (85 g/day), legumes (233 g/week) and milk and dairy products (187 g/day) emerged. In addition, a consumption of red meat (209 g/week) twice as high as the national guidelines was observed. Subgroup analysis showed that women and the elderly consumed significantly ($p<0.001$) more fruit, vegetables, bread and less meat and meat products than men and younger subjects. At a logistic regression analysis adjusted for possible confounding factors, women showed an increased probability (OR 1.34, 95%CI 1.22-1.46; $p<0.001$) of being in the highest MD adherence tertile (i.e. Medi-Lite score >11).

Conclusion: Although the sample reported moderate adherence to MD, consumption of some typically Mediterranean food groups such as vegetables, legumes and bread is still low, while consumption of red meat is high.

COD. P022

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10654

Identification of food derived phenolics as modulators of proteolytic enzymes in the digestive tract: in vitro and in silico approaches

S.M. Borgonovi[1], F. Perugino[2], L. Pedroni[2], A. Pinto[1], S. Dallavalle[1], S. Iametti[1], L. Dellafiora[2], G. Galaverna[2], M. Di Nunzio[1]

[1]*Department of Food, Environmental and Nutritional Sciences (DeFENS), University of Milan, Italy*

[2]*Department of Food and Drug, University of Parma, Italy*

The interaction of food components with digestive enzymes can modify the digestion process and affect human health. Phenols/ polyphenols (PPs) have a role in regulating metabolism and a beneficial impact on some chronic diseases. On a different tune, PPs are often referred to as anti-nutritional factors, having been reported to inhibit proteolytic digestive enzymes. However, reports on this particular topic are often conflicting, stressing the need to evaluate the effects of PPs through standardized approaches. In this study, the effects on proteolysis of a selected collection of food-derived PPS, characterized by different chemotypes and used either as glycosides or aglycones, were tested “in vitro” on pepsin, trypsin, and chymotrypsin acting on albumin, gluten, and hemoglobin as substrates. Results show that PPs may affect proteolytic activity in opposite ways, depending on the substrate/enzyme system. In the second part of the study, “in silico” approaches were used to investigate the binding of a restricted set of PPs to a model substrate (ovalbumin) and a model enzyme (chymotrypsin). After extensive literature search and pocket scanning, molecular docking and molecular dynamics simulations were used to pinpoint the capability of PPs to interact in a stable way with either protein. The combined approaches indicate that the most potent proteolytic inhibitors were PPs interacting with the enzyme binding site, whereas PPs acting as enhancers of proteolysis were more likely to interact with sites on the substrate protein. Concluding, our results indicate that peculiar structural features of PPs have a role in eliciting their specific effects, in terms of 3D- structure, substitution pattern, and lipophilicity, suggesting a possible modulatory role of PPs in the formulation of functional foods.

This investigation is partially supported by National Recovery and Resilience Plan (NRRP), Mission 4 Component 2 Investment 1.3 - Call for tender No. 341 of 15/03/2022 of Italian Ministry of University and Research funded by the European Union – NextGenerationEU, in the frame of the project: Research and innovation network on food and nutrition Sustainability, Safety and Security (ONFoods) and 1H-HUB.

COD. P023

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10655

SIX MONTHS OF INTEGRATED THERAPY ON CYTOKINES LEVELS IN ANOREXIA NERVOSA ADOLESCENT: A CASE-CONTROL STUDY

A. Di Paolo[1], V. Membrino[1], S. Alia[1], L. Nanetti[2], L.E. Svarca[2], L. Mazzanti[1,3], E. Salvolini[1], M. Severini[2], A. Vignini[1,4]

[1]*Department of Clinical Sciences, Section of Biochemistry, Biology and Physics, Università Politecnica delle Marche, Ancona, Italy*

[2]*Department of Neuropsychiatry, Children's Hospital "G. Salesi", AOU Ospedali Riuniti Ancona, Italy*

[3]*Fondazione Salesi, Ospedale G. Salesi, Ancona, Italy*

[4]*Research Center of Health Education and Health Promotion, Università Politecnica delle Marche, Ancona, Italy*

Anorexia nervosa (AN) is a complex disease affecting mainly, but not only, teenagers.
Although it is difficult to determine its incidence and prevalence, it is believed that AN afflicts 0.9-4.0% of women in the USA and Europe. In recent decades, the age at onset of AN has been decreasing and, more importantly, childhood and adolescent AN are on the rise. Researchers agree that AN is deeply associated with a pro-inflammatory state following an impaired immune system, due to prolonged starvation and malnutrition, as well as any single nutritional deficiency. Altered levels of pro-inflammatory cytokines are also the result of frequent depressive states. This state of increased inflammation could lead to endothelial dysfunction, weakening the vascular intimal layer and predisposing to the development of spontaneous coronary artery dissection (SCAD). Finally, AN patients may be at risk of mechanical injury to the vasculature. Thus, we performed a case-control study in a sample of 16 young female patients with early diagnosis of AN and without any previous treatment, compared to 22 healthy controls matched by age, sex and socioeconomic status in order to detect the relationship, if any, between AN patients and pro-inflammatory cytokines. We evaluated eating-related psychopathology and depressive symptoms and measured serum concentration of IL-1β, IL-6, IL-8 and TNF-α before and after 6 months of integrated therapy (i.e. psychopharmacotherapy, psychotherapy and nutritional rehabilitation). We highlighted that the selected pro-inflammatory cytokines significantly decreased after 6 months of integrated therapy and were restored within the reference range as well as an improvement in the anxiety-depressant aspects was also noted. In conclusion, we can affirm that pro-inflammatory cytokines play a role in the pathophysiology of AN, but they cannot play the role of pathognomonic markers, thus further studies are needed to investigate whether cytokines could be considered as a potential target for biological drugs.

COD. P024

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10657

The assessment of nutritional risk in patients with pancreatic cancer. A narrative review

O. Di Vincenzo[1], E. Azzini[2], A. Pinto[3], I. Savini[4], A. Polito[2], L. Scalfi[1], On Behalf Of The SINU Group On NUTRITION IN ONCOLOGY

[1]*Department of Public Health, School of Medicine, Federico II University, 80131 Napoli, Italy*

[2]*Council for Agricultural Research and Economics-Research Centre for Food and Nutrition, 00178 Roma, Italy*

[3]*Department of Experimental Medicine, Food Science and Human Nutrition Research Unit, "Sapienza" University, 00185 Roma, Italy*

[4]*Department of Experimental Medicine, University of Rome “Tor Vergata”, 00133 Roma, Italy*

Background

The SINU working group on "NUTRITION IN ONCOLOGY" aims to fill the nutritional gaps in the management of cancer patients. One aspect concerns nutritional risk assessment as the first step of the nutrition care process. Validated tools are commonly applied in the clinical setting for nutritional screening. This narrative review is focused on the prevalence of nutritional risk as well as its associations with clinical outcomes in patients with pancreatic cancer (PaC).

Methods

The bibliographic search was carried out in PubMed and checked by examining SCOPUS, Embase and Web of Science, retrieving data on the following screening tools: COntrolling NUTritional status (CONUT) score, Geriatric Nutritional Risk Index (GNRI), Malnutrition Universal Screening Tool (MUST), Nutritional Risk Screening 2002 (NRS-2002), and Nutritional Risk Index (NRI).

Results

Most studies were retrospective and observational, on a single-centre basis, and were carried out in PaC patients submitted to chemotherapy, radical surgery, conversion surgery following chemo/radiotherapy, biliary drainage, or a combination of therapies. Few data are available for the advanced stages of the disease and for the comparison between sexes or between younger and older patients. The prevalence of nutritional risk ranged from 6% to 64% and widely varied due to types of patients, stage of the disease, chosen tool, diagnostic criteria, etc. In the short term, nutritional risk has been associated with postoperative complications, length of hospitalization, and mortality within three months. In the long term (follow-up length of up to several years), a high nutritional risk has been found to be associated with shorter overall survival, recurrence-free survival and post-recurrence overall survival, Evidence on the relationships with short and long term outcomes widely varies depending on the screening tool.

Conclusions

More evidence is needed to identify the most appropriate approaches to assess the nutritional risk in surgical or medical patients with PaC. So far, there have been few attempts to compare the usefulness and reliability of different tools/procedures and only few data on changes in nutritional risk with time.

COD. P025

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10659

A NOVEL APPROACH TO INNOVATIVE AND SUSTAINABLE MEDITERRANEAN DIET MODEL (ONMED)

G.L. Russo[1], F. Lauria[1], C. Spagnuolo[1], V. Di Marzo[2,3,4], C. Silvestri[2], F. Raymond[3], A. Formisano[1], M. Dello Russo[1], M. Russo[1], S. Moccia[1], P. Russo[1], A. Siani[1], R. Giacco[1]

[1]*Consiglio Nazionale delle Ricerche, Institute of Food Sciences, 83100 Avellino, Italy*

[2]*Canada Excellence Research Chair in the Microbiome-Endocannabinoidome Axis in Metabolic Health, Department of Medicine, Université Laval, Quebec City, Canada.*

[3]*Canada Excellence Research Chair in the Microbiome-Endocannabinoidome Axis in Metabolic Health, School of Nutrition, Université Laval, Quebec City, Canada.*

[4]*Unité Mixte Internationale en Recherche Chimique et Biomoléculaire sur le Microbiome et son Impact Sur la Santé Métabolique et la Nutrition (UMI-MicroMeNu), Université Laval and Consiglio Nazionale delle Ricerche, Institute of Biomolecular Chemistry, 80078*

Evidence demonstrates that high-level adherence to a Mediterranean diet has strong associations with gut microbiota composition and functionality. In addition, the beneficial effects of non-nutrient components of foods on human health have become increasingly important in the last decades. Clinical and experimental studies have found that the introduction in the diet of supplements enriched with bioactive compounds could target specific microbial activities with a deep impact both on the gut microbial balance as well as human health. From a consumer perspective, supplements are gaining prominence and becoming a part of the average daily diet. In the frame of the National Recovery and Resilience Plan, the project ON Foods, Spoke 5 is entitled “Lifelong Nutrition” and includes a task dedicated to identifying innovative models of a Mediterranean diet for the promotion of healthy and sustainable nutrition. In this context, ONMED proposes to perform a nutritional intervention study on a population of adults at high/moderate risk of developing metabolic diseases (e.g. mild forms of diabetes). The nutritional intervention will test the effectiveness of a new model of the Mediterranean diet enriched with a formulation of non-nutrient food components (i.e. a beverage enriched in polyphenols obtained from red grape pomace) possessing potential functional activity in improving the health of the gut microbiota. The bioactive ingredients employed will be obtained from biomass residues supporting the principles of circular bio-economy. The endpoints of the study include: 1) the differences in gut microbiota composition after dietary treatment with a polyphenol-enriched beverage (primary endpoint); 2) the effects of a polyphenol-enriched beverage on oxidative markers, daily blood glucose, and lipid metabolism (secondary endpoints). The multidisciplinary composition of the research group with complementary expertise spanning from human nutrition, metabolic diseases and epidemiology to biochemistry, microbiology and pharmacology will guarantee the development and validation of a new sustainable Mediterranean diet model.

Acknowledgments - Project funded under the National Recovery and Resilience Plan (NRRP), Mission 4 Component 2 Investment 1.3 - Call for tender No. 341 of 15 March 2022 of Italian Ministry of University and Research funded by the European Union – NextGenerationEU; Award Number: Project code PE00000003, Concession Decree No. 1550 of 11 October 2022 adopted by the Italian Ministry of University and Research, CUP B83C22004790001, Project title “ON Foods - Research and innovation network on food and nutrition Sustainability, Safety and Security – Working ON Foods”.

COD. P026

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10660

Self-administered web-based 24h recall vs Interviewer-led recall: a comparison pilot study within the framework of SUP-DIE project

L. Mistura[1], F.J. Comendador Azcarraga[1], L. D'Addezio[1], C. Le Donne[1], D. Martone[1], R. Piccinelli[1], S. Sette[1]

[1]*Council for Agricultural Research and Economics, Research Centre for Food and Nutrition (CREA Food and Nutrition), Rome, Italy*

In recent years there has been a growing interest in the use of technology and web-based platforms in the assessment of dietary intake for large-scale dietary surveys. Technological advancements have led to the development of web-based, self-administered, 24-h dietary recalls which can help in reducing the logistical burden and cost of conventional methods and provide the opportunity for more efficient and cost-effective dietary assessments in comparison to more traditional paper-based methods or interviewer-led surveys.The software FOODCONS was developed by CREA Food and Nutrition for recording food consumption and includes two data entry modules: "24-hour recall" and "Food diary" and one for "data management". The current version is the first and, to date, the only Italian software allowing self-compiled registration of food consumption in accordance with the EU Menu EFSA methodology. FOODCONS is designed to be intuitive, quick and simple to use: portion size of the food items is estimated through a digital food atlas contained in it; food items are linked to the CREA databases on food composition, recipe ingredients and food portion sizes and all data are automatically coded and entered. A management interface allows to upload a sample frame and to download the output data such as the amount in grams, nutrient data at level of food items. The aim of this pilot study is to compare by examining food items, food group, energy and nutrient intakes of self-administered 24h recall (the test method) with interviewer-led 24h recall (the reference method), using FOODCONS in both cases, in 40 adult volunteers (aged 18-64 years) randomized in A and B groups: test method first vs reference method and reference method first vs test method.The A group completed first a self-administered 24-hour recall, after carefully watching two specially developed video tutorials, and, after at least three hours, an interviewer-led 24-hour recall of the same day. The B group performed the 24h-recall in the opposite order as control. After a couple of weeks, the order of the recall was reversed for both groups.The pilot study, funded under the SUP-DIE project by the Central European Initiative (Ref. No. 304.4.35-20), has started last February and will end in June 2023.

COD. P027

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10662

Vitamin D and Psoriasis: A Systematic Review with Meta-Analysis

E. Formisano[1,2], E. Proietti[1], C. Borgarelli[1], L. Pisciotta[1,2]

[1]*Department of Internal Medicine, University of Genoa, 16132 Genoa, Italy*

[2]*Dietetics and Clinical Nutrition Unit, IRCCS Policlinic Hospital San Martino, 16132 Genoa, Italy*

Introduction: psoriasis is a chronic inflammatory disease with uncontrolled proliferation of keratinocytes and immune dysregulation. Vitamin D deficiency is reported to be a risk factor for the disease development and topical therapies are considered a valid treatment. Although, oral 25 hydroxyvitamin D [25(OH)D] was investigated as possible therapy of psoriasis as it can contribute to immunity homeostasis, but the results are still controversial. We aimed to review and analyze the relationship between vitamin D deficiency and psoriasis and the efficacy of oral supplementation of 25(OH)D in improving the Psoriasis Area and Severity Index (PASI).

Methods: we conducted a systematic review with meta-analysis of studies describing the vitamin D deficiency in patients with psoriasis and the effect of oral 25(OH)D supplementation on PASI (2-week dose of 60000 IU vitamin D2 and one-monthly dose of 100000 IU vitamin D3). Furthermore, we assessed the difference in calcium, phosphorus and parathormone levels in psoriasis patients versus controls. The study was conducted according to the Preferred Reporting Items for Systematic reviews and Meta-Analyses.

Results: fourteen case-control studies, 4 cross-sectional studies and 3 randomized double-blind placebo-controlled studies were included. Overall, 9117 subjects were allocated in vitamin D levels analysis (1607 psoriasis patients vs 7299 controls) and oral vitamin D supplements efficacy analysis in patients with psoriasis (113 vitamin D supplementation vs 98 placebo). Patients with psoriasis had significantly lower 25(OH)D levels than controls resulting in a mean difference of -6.18, CI -8.36, -3.99 ng/dL (32.4±8.6 vs 38.6±10.2, $p<0.00001$). Patients with psoriasis had higher levels of parathormone than controls, with a mean difference of 6.37, CI 1.6, 11.1 pg/mL (48.8±18.4 vs 42.4±13.7, $p=0.009$). No significant differences were found in PASI after 3, 6 and 12-months of 25(OH)D supplementation compared to placebo in psoriasis patients.

Conclusion: these data suggest a relationship between low levels of vitamin D and psoriasis development, but despite this observation, the vitamin D supplementation did not improve clinical manifestations. Furthermore, an alteration of bone metabolism is present in subjects with psoriasis.

COD. P028

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10663

Raw BIA-derived variables are markers of health-related fitness (muscle strength) in young adults.

G. Ballarin[1], F. Monfrecola[2], P. Alicante[2], O. Di Vincenzo[2], G. Valerio[1], L. Scalfi[2]

[1] Department of Movement Sciences and Wellbeing, University of Naples "Parthenope", Naples, Italy

[2]Department of Public Health, Federico II University of Naples, Naples, Italy

Background: Not so many data are available on the relationships between body composition (BC) and health-related physical fitness (HRF), in particular with regard to population-based measures of muscle strength. As raw variables determined with bioelectrical impedance analysis (BIA), bioimpedance index=BI-index, as a proxy of fat-free mass (FFM), ad phase angle=PhA, as an index of body cell mass, are both candidates for predicting HRF. We evaluated, BC, raw BIA variables and HRF in young adults of both sexes and investigated their mutual relationships to identify the predictors of muscle strength among the variables considered. Methods: Two-hundred nineteen young adults (109 men and 110 women; age 24.2±3.0 years; BMI 19-30 kg/m²) attending the Federico II University (Napoli) participated in the study. Anthropometry was measured according to standardized procedures. BIA was performed at 50 kHz for determining impedance e PhA. FFM and percentage body fat (%BF) were estimated by BIA predictive equations for healthy subjects, while BI-index was calculated as stature² divided by whole-body impedance. HRF (domain of muscle strength) was assessed by handgrip strength (HGS), standing broad jump (SBJ), squat jump (SQJ) and counter-movement jump (CMJ). Results:Stature, weight, and body mass index (BMI) were significantly greater in men than women. Male students also exhibited ($p<0.001$) higher FFM, PhA, HGS, SBJ, SQJ and CMJ and lower %BF. In both sexes HRF showed stronger associations with BC compared to the ones with stature, weight, or BMI. HGS was directly related to FFM (even more to BI), while an inverse association with %BF emerged for SBJ, SQJ and CMJ. In addition, PhA was directly associated with HGS, SBJ, SQJ or CMJ. In the multiple regression model, PhA resulted to be an independent predictor of all HRF tests in addition to sex and FFM (or BI) for HGS and to sex and %BF for the jump tests. Discussion:The present study yields coherent information on the relationships between body composition, PhA, and HRF in young adults of both sexes. Interestingly, PhA was a significant predictor of all HRF measures along with BC and might be taken into consideration as a variable useful for a more consistent assessment of HRF.

COD. P029

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10664

An intervention for nutrition and physical activity change in children/adolescents with obesity: impact on weight-related parameters and motor performance

E. Muscariello[1], V. Di Mauro[1], S. Forte[1], S. Mantovano[1], M. Esposito[1], F. Gallè[2], G. Valerio[2], G. Liguori[2], P. Pecoraro[1]

[1]*Nutrition Unit, Department of Prevention, Local Health Authority Napoli 3 Sud*

[2]*Department of Movement Sciences and Wellbeing, University of Naples "Parthenope"*

Aim: The aim of our study was to evaluate the effect of an intervention for lifestyle change on weight-related parameters and motor performance in children/adolescents with obesity. Methods: 82 patients (45.1% F, 7–17 years) attending the "Second Level Assistance Center for Obesity in Childhood" of the Local Health Authority "Napoli 3 Sud" were recruited. Personalized nutrition and physical activity planes haves been released to all patients. Furthermore, psychological support for children and their families was offered. Anthropometric measurements, body mass index (BMI), BMI-standard deviation score (BMI-SDS), body composition, visual reaction time (VRT), vertical jump elevation (VJE) and power (VJP), dietary habits and physical activity (PA) levels were assessed at baseline and at 12-month follow-up. Results: Significant improvements were observed in mean/median BMI-SDS and Fat Free Mass (FFM), dietary habits, PA levels and VRT (BMI-SDS 2.0±0.58 vs 2.15 ± 0.51; FFM 43.7 ± 11.6 vs 41.0 ± 11.4 Kg; Kidmed score 6 (5-8) vs 4 (3-6); CPAQ score 2.11 (1.80-2.41) vs 1.65 (1.30-1.90); VRT 0.76 (0.65-0.88) vs 0.88 (0.76-1.04) $p<0.001$). Participants also showed a significant improvement in jump parameters (VJE 14.62 (12.45-17.0) vs 13.04 (10.43-16.16) cm; VJP 9.23 (8.30-10.12) vs 8.46 (7.64-9.56) W/Kg, $p<0.001$). VRT improvement was related to age (OR = 0.285, 95%CI 0.098 - 0.830, p = 0.021) and FFM (OR = 0.255, 95%CI 0.070 - 0.933, p = 0.039). The increase in VJE was associated with BMI-SDS (OR = 0.158, 95%CI 0.036 - 0.695, p = 0.015) and with PA level (OR = 19.102, 95%CI 4.442–82.142, p < 0.001); the increase in VJP was related with PA increase (OR = 5.564, 95%CI 1.812–17.081, p = 0.003). Conclusions: These data show that a multidisciplinary obesity treatment significantly may improve nutritional status as well as motor performance in children/adolescents with obesity.

COD. P030

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10665

Modulation of gut microbiota through nutritional interventions in Behçet's syndrome patients: preliminary results from the MAMBA study

G. Pagliai[1,2], S. Turroni[3], F. D'Amico[4], I. Mattioli[1], M. Dinu[1,2], S. Lotti[1], M. Tristan Asensi[1], B. Colombini[1], I. Giangrandi[2], G. Emmi[1], F. Sofi[1,2]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Italy*

[2]*Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*

[3]*Unit of Microbiome Science and Biotechnology, Department of Pharmacy and Biotechnology, University of Bologna, Italy*

[4]*Microbiomics Unit, Department of Medical and Surgical Sciences, University of Bologna, Italy*

Background. Recent evidence suggests that the gut microbiota (GM) in Behçet's syndrome patients (BS) has low diversity and a peculiar layout. Diet is known to influence GM, but to date no study has investigated its effect in these patients.
Aim. To evaluate the effect of a lacto-ovo vegetarian diet (VD) and a Mediterranean diet supplemented with 2 g/die of oral butyrate (MD-Bt), in comparison with a Mediterranean diet (MD) on GM in BS.
Methods. Forty-four (27F; mean age: 46.9 ± 11.2 years) BS were randomly assigned to follow a VD, MD-Bt, or MD for 3 months each and then crossed. Stool samples were collected from participants at the beginning and at the end of each intervention phase. Samples were analyzed by 16S rRNA amplicon sequencing on an Illumina MiSeq platform.
Results. Regarding alpha diversity, a decreasing trend after VD (Shannon index: p=0.069; observed species: p=0.08) and an increasing trend after MD (Shannon index: p=0.084; observed species: p=0.079) were observed. Regarding beta diversity, no significant separation was found between sample groups, either over time or between different interventions. Phylum-level taxonomic analysis showed a significant increase in Bacteroidetes (+2.6%; p=0.049) following MD and a significant reduction in Proteobacteria (-0.2%; p=0.035) following MD-Bt. At the family level, we observed a significant increase in Bacteroidaceae (+2%; p=0.05) and Porphyromonadaceae (+0.3%; p=0.004) after MD, a significant reduction in Porphyromonadaceae (-0.4%; p=0.05) and Rikenellaceae (-0.7%; p=0.03) after VD, and a significant reduction in Rikenellaceae (-0.2%; p=0.008) and Turicibacteraceae (-0.02%; p=0.04) after MD-Bt. In addition, there was a significant increase in the genus Bacteroides (+2%; p=0.05) and Parabacteroides (-0.2%; p=0.004) after MD. On the other hand, MD-Bt, led to a significant increase in Clostridium (+1%; p=0.05) and a significant reduction in Oscillospira (-0.6%; p=0.011) and Turicibacter (-1.9%; p=0.04).
Conclusions. MD appeared to have an overall better impact on GM modulation of BS, in terms of greater diversity and potentially beneficial compositional changes.

Project funded by the Italian Ministry of Health (Ricerca Finalizzata 2016).

COD. P031

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10667

Effect of consumption of vegetables grown with the “OrtoBioattivo” method on gut microbiota and short-chain fatty acids production in clinically healthy subjects

G. Pagliai[1,2], M. Tristan Asensi[1], M. Dinu[1,2], S. Lotti[1], A. Napoletano[1], I. Giangrandi[2], B. Colombini[1], A. Battiata[3], F. Sofi[1,2]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Italy*

[2]*Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*

[3]*Ortobioattivo Azienda Agraria, Florence, Italy*

Background. “OrtoBioattivo” method is a non-conventional cultivation system that bans the use of chemical inputs and aims to maintain organic matter and microbial biodiversity in the soil. An adequate vegetable consumption is essential to maintain a balanced gut microbiota (GM). However, it is not yet known how different growing methods may impact the prebiotic effect of plant-based foods.

Aim. To investigate the effect of consumption of vegetables grown with the “OrtoBioattivo” method on GM and short-chain fatty acids (SCFAs) production in health adult population.

Methods. Vegetables from “OrtoBioattivo” were given to 20 healthy subjects (14 F; mean age 39.4 ± 12.1 years) for 8 weeks. Stool samples were collected from each subject at the beginning and the end of the intervention period. GM composition and SCFAs production were evaluated with 16 rRNA sequencing and a gas chromatography-mass spectrometry protocol, respectively.

Results. The analysis of GM richness and uniformity revealed no significant differences from pre- to post-intervention at the various taxonomic levels. Similarly, a comparison of alpha and beta diversity indices revealed no significant changes in the GM distribution. However, a significant reduction of the Leuconostocaceae members (padj= 0.027; log2FC= 10.305) and the genera [Eubacterium]_ruminantium (padj= 0.026; log2FC= 10.633) and Weissella (padj= 7.6e-3; log2FC= 12.029) have been reported after the intervention with vegetables from “OrtoBioattivo”. As to SCFAs production, a significant decrease (-0.1%; p<0.001) in the pro-inflammatory nonanoic acid was observed after the intervention.

Conclusions. Vegetables grown by the “OrtoBioattivo” method appear to positively impact the GM composition and the SCFAs production, suggesting a potential beneficial role of this food products for the human health.

Project OBA.NUTRA.FOOD funded by Programma di Sviluppo Rurale della Regione Toscana

COD. P032

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10670

Raw BIA variables, nutritional risk and inflammation markers in patients with chronic obstructive pulmonary disease (COPD) admitted to a rehabilitation unit

P. Alicante[1], B. Castellucci[2], G. Ballarin[3], O. Di Vincenzo[1], G. Miracco Berlingieri[2], F. De Blasio[2], L. Scalfi[1]

[1]*Department of Public Health, Federico II University, Naples, Italy*

[2]*Respiratory Medicine and Pulmonary Rehabilitation Unit, Clinic Center, Private Hospital, Naples, Italy*

[3]*Department of Movement Sciences and Wellbeing, University of Naples "Parthenope" Naples, Italy*

Introduction

A high prevalence of malnutrition and inflammation is observed in chronic obstructive pulmonary disease=COPD. Phase angle=PhA and impedance ratio=IR, which are raw BIA (bioelectrical impedance analysis) variables known as proxy indexes of body cell mass, are associated with the severity of disease. Considering the paucity of data and the need for specific research, the present study aimed to relate, in COPD patients, raw BIA variables to nutritional risk and inflammatory markers.

Methods

COPD patients were consecutively recruited after admission to an inpatient rehabilitation unit. Anthropometry and BIA were measured according to standardized procedures. The Screening tools taken into consideration were: Mini Nutritional Assessment Short Form=MNA-SF, Prognostic Nutritional Index=PNI, Geriatric Nutritional Risk Index=GNRI and Controlling Nutritional Status=CONUT score. The inflammatory process was evaluated by C-reactive protein=CRP, fibrinogen, fibrinogen to albumin ratio=FAR, CRP to albumin ratio=CAR and neutrophils to lymphocytes ratio=NLR.

Results

A total of 464 COPD patients (310 men and 154 women, age 69.3±8.2 yrs and BMI 26.1±5.7 kg/m²) participated in the study. Prevalence of underweight, normal weight, overweight and obese patients was 20, 26, 31 and 23% of the study sample, respectively. A significant nutritional risk was detected in 40% for MNA-SF, 54% for PNI, 45% for GNRI and 15% for CONUT of patients. PhA and IR were moderately correlated with age, weight and BMI, and also with muscle strength. PhA was significantly lower and IR was significantly higher in patients at nutritional risk (categorical variables) as assessed by each of the tools used. Raw BIA variables moderately correlated with the scores of different tools (continuous variables). As for inflammatory parameters, PhA correlated with fibrinogen, lymphocytes, FAR and NLR, and IR with lymphocytes and NLR (weakly with CRP, fibrinogen, neutrophils, FAR, and CAR). Inflammatory parameters were also more altered in patients at high nutritional risk and in those with higher PhA or lower IR.

Conclusion

For the first time, the present paper shows that in COPD patients raw BIA variables are significantly associated with nutritional risk and inflammation.

COD. P033

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10672

Is Food Neophobia a driver of low adherence to the Mediterranean Diet in children?

A. Di Nucci[1], U. Scognamiglio[2], S. Pilloni[2], L. Rossi[2]

[1]*Unit of Human Nutrition and Health, Department of Food Safety, Nutrition and Veterinary Public Health, Italian National Institute of Health, Rome, Italy*

[2]*Research Centre for Food and Nutrition, Council for Agricultural Research and Economics (CREA), Rome, Italy*

Background: The reluctance to eat new or unknown foods, defined Food Neophobia (FN), is a very common behavior in developmental age that limits the variety and quality of diet in children. Fruits, vegetables and legumes, typical of Mediterranean Diet (MD), are the foods most refused by neophobic children. Considering these premises, this study aimed to evaluate the association between FN and the Adherence to Mediterranean Diet (AMD).

Methods: A sample of 288 children aged 3-11 years, participated to an assessment carried out with a questionnaire evaluating FN and AMD, with Child Food Neophobia Scale (CFNS) and the KIDMED Test. Descriptive statistics were produced and a contingency analysis to check associations between variables was performed.

Results: The average score of FN was 42,2 ± 14,04 and the large majority of the sample (67,4%) showed an intermediate level of neophobia followed by a high level (18%). The average score of AMD was 4,9 ± 2,4 and the large majority of the sample (54,9%) showed average adherence with approximately one third of respondents (29,5%) having a very low adherence. A significant association between FN and AMD was found: children with high level of neophobia showed a very low AMD (51,9%; p value < 0,05).

Discussion: FN and low AMD were frequent in the analyzed sample. The most important result of this study is related to the fact that FN could be a predictor of low AMD in pediatric age because of the rejection of foods typical of MD.

COD. P034

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10675

Novel image-based dietary assessment tools: the role of the machine learning approaches for food recognition and nutritional evaluation in epidemiological studies

R. Bianco[1], V. Edefonti[2], F. Fiori[1], M. Marinoni[1], M. Parpinel[1]

[1]*Department of Medicine (DAME), University of Udine*

[2]*Branch of Medical Statistics, Biometry, and Epidemiology 'G. A. Maccacaro', Department of Clinical Sciences and Community Health, University of Milan*

Background: inadequate diet is considered one of the principal risk factors for morbidity and mortality in noncommunicable diseases. However, because of several limitations in data collection, such as people's subjectivity and memory and the need for time and trained interviewers, future challenges are focused to design more accurate and precise tools for diet assessment using an innovative approach. The recent advances in artificial intelligence have led to the introduction of many new applications. Machine learning (ML) is a subfield of artificial intelligence that aims to enable computer to learn without being directly programmed, and it is often applied on big data rather than conventional statistical approaches. A first perspective paper in 2021 considered application of ML in nutritional epidemiology. In detail, deep learning can be used to automatically classify foods from pictures. These techniques may facilitate less effortful and more regular diet records, improving precision and validity, and overcoming self-report biases. Methods: a PhD project at University of Udine is dedicated to the realization of a pilot dataset including Italian recipes and their related photos, volumes, weights, and nutritional values. Later, an algorithm based on a specific procedure including Convolutional Neural Network models will be developed. Finally, the training of the ML algorithm on the Nutrition5k food dishes dataset and the development and validation of an innovative image-based dietary assessment tool will be carried out. Conclusion: despite of its excellent performance in image and text recognition, deep learning has never been applied to develop dietary assessment tools in Italy. The project will popularize the idea that a judicious application of ML and refined statistics could advance nutritional epidemiology. Expected results include ML algorithms to assess weights from food images to support diet monitoring and open Italian atlas of food dishes with the related nutritional composition of recipes.

Morgenstern et al, Adv Nutr, 2021,12:621-631
Lo et al, J Biomed Health Inform, 2020,24:1926-1939
Gnagnarella et al, libreriauniversitaria.it edizioni, Padova, 2022
Thames et al, Proceedings of the IEEE Computer Society Conference on CVPR, 2021;8899-8907

COD. P035

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10676

Mediterranean Diet abroad (ESTDIEM) project: school-based interventions and international comparison

A. Di Nucci[1], S. Fratianni[1], E. Cardamone[1], A. Devecchi[2], A. Scrofani[2], F. Caturano[2], R. Gaglione[3], R. Marcianò[3], A. Nebbiai[3], A. Pezzana[2], M. Silano[1]

[1]*Unit of Human Nutrition and Health, Department of Food Safety, Nutrition and Veterinary Public Health, Italian National Institute of Health, Rome, Italy*

[2]*Unit of Clinical Nutrition, ASL Città di Torino, Turin, Italy*

[3]*Directorate General hygiene, food safety and nutrition Office 1, Ministry of Health, Rome, Italy*

In recent years, the prevalence of childhood obesity in all Europe has been dramatically increasing and, in the meanwhile, the Adherence to Mediterranean Diet (AMD) is decreasing, due to westernized food habits and lifestyles, that most influence adolescents. A healthy balanced dietary pattern, such as Mediterranean Diet (MD), is essential to ensure healthy physical and mental growth in adolescents and to prevent Noncommunicable chronic diseases. Considering these promises, Italian Ministry of Health, in collaboration with Ministry of Foreign Affairs and International Cooperation, Italian National Institute of Health and Health Local Unit “ASL Città di Torino” promoted a nutritional education program in Italian schools abroad, as part of the Italian commitments to the UN Decade of Action on Nutrition.
Mediterranean Diet abroad (ESTDIEM) project aims to disseminate among adolescents the principles of environmental sustainability, traditionality, conviviality and healthiness of MD.

The project consisted of a school-based nutritional education program, with an initial assessment of AMD using the validated ARIANNA questionnaire, and several theoretical and practical modules on MD principles and pillars. All those activities were carried out according to the Nudging and Active Involvement Methodology. ESTDIEM project also consisted of a second stage, aimed to strengthen healthy nutrition literacy on MD through a Health Literacy document and social media accounts (Instagram and Facebook), that posted weekly updates.

The intervention involved two foreign Italian high schools (Barcelona, Lausanne) for a total of 120 students, guided by a team of 10 health professionals (dieticians, psychologists, medical doctors).

Interventions within ESTDIEM study confirmed adolescents' departure from MD. This project also helped to highlight the effectiveness of a nutritional education program by a multidisciplinary team in schools, as an ideal setting for health promotion and environmental safeguard.

COD. P036

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10678

DRV of Nutrients and Energy for Italian population and Healthy Eating Guidelines: fundamental tools for estimating the adequacy of the absolute poverty basket

R. Piccinelli[1], L. Mistura[1], V. De Martino[2], A. Brunetti[2]

[1]*Council for Agricultural Research and Economics, Research Centre for Food and Nutrition*

[2]*Italian National Institute of Statistics*

In the light of ongoing changes in society, new lifestyles and the availability of new data sources, an inter-institutional scientific commission (ISTAT) was set up to update the absolute poverty basket dating back to 2005.
CREA Food and Nutrition (CREA-AN) was involved in the preparation of individual daily food combinations and their quantification so that the basket would ensure nutritional adequacy.
For the construction of the food basket, food items were identified among those most and commonly consumed by Italians selected from the data of the latest national food consumption survey conducted by CREA-AN from 2017-2021 (IV SCAI), on a sample aged between 3 months and 74 years.
The food items were classified into 12 food groups and 26 subgroups among those for which the Healthy Eating Guidelines (2018) provide reference portions and respective consumption frequencies. In addition, to make the food plans more realistic, 7 subgroups were considered from among those 'voluptuaries', meaning foods that are commonly consumed but are unhealthiness, have high energy density and low nutritional value and for which very moderate consumption is recommended.
Nutritional adequacy was calculated for 10 age groups based on the DRV of Nutrients and Energy for Italian population (LARN 2014), which refer to healthy individuals practicing moderate physical activity.
Using these fundamental tools, 11 food plans were elaborated, one for each age group. In the 6 food plans for the age groups from 1 to 17 years, the portion sizes (g) and consumption frequencies (daily or weekly) suggested by the Guidelines were taken into consideration. For the next four classes (18->75 years) the standard portions and consumption frequencies recommended for adults by the Guidelines were used. Due to the small number of foods selected per age group, it was necessary in some cases to slightly modify the recommended portion size or frequency to achieve sufficiency with regard to the main nutritional requirements of the specific age group.

COD. P037

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10679

Vitamin nutritional status in patients with pancreatic cancer

T. Furini[1], E. Azzini[2], A. Polito[2], L. Scalfi[3], A. Pinto[4], I. Savini [1]

[1]*Department of Experimental Medicine, University of Rome "Tor Vergata", 00133 Rome, Italy*

[2]*Council for Agricultural Research and Economics-Research Centre for Food and Nutrition, 00178 Rome, Italy*

[3]*Department of Public Health, School of Medicine, Federico II University, 80131 Naples, Italy*

[4]*Experimental Medicine Department, Food Science and Human Nutrition Research Unit, "Sapienza" University, 00185 Rome, Italy*

Background: The SINU working group on "NUTRITION IN ONCOLOGY" aims to fill the nutritional gaps in the management of cancer patients. One aspect concerns vitamin malnutrition. Cancer-associated malnutrition can elicit several impairments, reduced physical functioning, and decreased survival. There are cases of micronutrient deficiencies that can lead to unpleasant worsening of symptoms; particularly, vitamins deficiencies can cause pathological conditions which can result in a deterioration in the patient's quality of life. Moreover, there is a lack of information about micronutrient status in patients with pancreatic malignancies often referred for surgery, and thus micronutrient deficiency states could impact their recovery. This narrative review is focused on prevalence of vitamins malnutrition among pancreatic cancer (PaC) patients.

Methods: The search was conducted on the Pubmed database, considering the studies published in the last 10 years on humans and checked by examining SCOPUS, Embase and Web of Science. The keyword used were the common and chemical name of each vitamin followed by "status and pancreatic cancer" or "assessment and pancreatic cancer" or "deficiency and pancreatic cancer".

Results: Several studies confirm the risk of deficiency for some water-soluble vitamins (thiamine, niacin, pyridoxine, biotin). No studies were found regarding the risk of riboflavin and pantothenic acid deficiencies, while for folic acid, cobalamin and vitamin C data are scarce and conflicting. Some studies hypothesize the increased risk of fat-soluble vitamins deficiencies due to pancreatic insufficiency and pancreatitis that are caused by advanced tumor stages. Vitamin E, A and D deficiencies were reported, especially in patients undergoing surgery. Data for vitamin K status as well as studies on the relationship between vitamin D and patient survival are conflicting.

Conclusion: In PaC patients the interconnections with vitamin deficiencies and borderline status may be more frequent than known. Further extensive studies are needed to design a nutritional path supporting the therapy of these fragile people as well as enable guideline development.

Key Words: Vitamins status, pancreatic cancer, nutrition.

COD. P038

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10681

Potential bioaccessibility of polyphenols and functional properties of tiger nut by-product during digestion

M.F. Chiacchio[1], P. Llorens[2], P. Vitaglione[1], C. Juan[2]

[1]*Dip. di Agraria, Università di Napoli "Federico II", Portici (Napoli)*

[2]*Department of Preventive Medicine and Public Health, Food Sciences, Toxicology and Forensic Medicine, University of Valencia, 46100 Burjassot, Spain*

Tiger nut (Cyperus esculentus L.,) is a tuber with well-known nutritional value for the content of dietary fiber, polyphenols, vitamins, essential amino acids, and unsaturated fatty acids. It is used to produce the “Horchata de chufa” that is a beverage largely consumed in Spain and whose preparation, even homemade, generates about 50-60% in weight of by-product, “pasta de chufa” (PC).
This study aims to characterize the polyphenols in PC and evaluate their bioaccessibility during an in vitro digestion along with the release of antioxidant activity and effect on the digestive enzymes activity.
Homemade tiger-nut beverage was prepared and PC collected and characterized for the polyphenols (HPLC method) and total antioxidant capacity (TAC by QUENCHER method). PC underwent in vitro digestion (INFOGEST method) and the bioaccessible fraction collected after intestinal digestion was analyzed for the profile of polyphenols, the TAC (ABTS method) and the ability to inhibit the activity of α-amylase, α-glucosidase and lipase; the TAC of the solid residue (QUENCHER method) collected after the intestinal digestion was also assessed.
Results showed that, among all the polyphenols identified in PC, gallic acid, protocatechuic acid, and ferulic acid were the most abundant and resistant to digestion and showed a bioaccessibility of 30%, 76%, and 44%, respectively. Despite vanillic acid and cumaric acid were less abundant in PC they were bioaccessible by 32% and 58%, respectively, whereas cinnamic acid was completely degraded at the end of digestion. The bioaccessible intestinal fraction showed a TAC increased by 8 times compared to the oral fraction and inhibited the activity of α-amylase by 56%, α-glucosidase by 88% and lipase by 60%. The residue of the digestion showed a TAC 2-fold higher than PC before digestion.
Altogether data demonstrated that the polyphenols from tiger nut by-product were bioaccessible and may exert antioxidant activity and digestive enzyme inhibitory activity along the gastrointestinal tract as well as maintain an antioxidative environment in the lower gut upon consumption.

COD. P039

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10683

Green assessment of Date seed phenolic profile using natural deep eutectic solvents

C. Gomez-Urios[1], J. Blesa[1], D. Lopez-Malo[2], A. Frigola[1], M.J. Esteve[1]

[1]Nutrition and Food Science. Faculty of Pharmacy, University of Valencia, Avda. Vicent Andrés Estellés, s/n. 46100 Burjassot (Valencia), Spain.
[2]Faculty of Health Sciences, European University of Valencia, Valencia, Spain

The reuse of by-products from the food and cosmetics industry has been increasing in recent years, due to a large number of bioactive compounds with high biological value, such as phenolic compounds. These compounds have antioxidant properties that are beneficial to health, such as reducing the risk of cardiovascular diseases, among others. The use of these bioactive compounds must be done in a sustainable way and following the principles of green chemistry, so the use of Natural deep eutectic solvents (NADES) helps to eliminate the use of organic solvents harmful to the environment and human health. Their physicochemical properties such as polarity, pH, and conductivity, make these solvents a suitable alternative to extracting bioactive compounds from plant matrixes.In the present study, choline chloride-glycerol-based NADES was used for the determination of phenolic compounds in date seeds powder, and Ethanol (EtOH) 50% (v/v) was used as a control. The extraction was performed by magnetic heating-stirring for 1h extraction time, after a solid-phase extraction in C18 cartridges, and an HPLC-UV/VIS determination was done. The phenolic profile showed that the phenolic compounds extracted with NADES presented in some cases higher extraction yields than the EtOH extract. Naringin was the phenolic compound that presented the higher extraction yield in NADES (172.99 ± 26.24 µg/ml) and in EtOH (143.81 ± 12.37 µg/ml). Vanillic acid in EtOH (10.15 µg/ml) extract was higher than in NADES extract (0.58 ± 0.05 µg/ml), algo for rutin the extracted with EtOH was the doble than NADES extract (14.02 ± 1.52 and 7.07 ± 0.20 respectively). Hesperidin was more than three times higher in NADES (89.16 ± 4.53 µg/ml) extract than in EtOH (19.97 ± 1.44 µg/ml). In conclusion, NADES could be a good alternative to conventional solvents for the extraction of phenolic compounds from date seeds powder.

COD. P040

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10684

Reuse of food by-products: Antioxidant capacity, proteins, and phenolic composition of blanching water from almonds

C. Gomez-Urios[1], Á. Suárez-Naranjo[1], J. Blesa[1], D. Lopez-Malo[2], A. Frigola[1], M.J. Esteve[1]

[1]*Nutrition and Food Science. Faculty of Pharmacy, University of Valencia, Avda. Vicent Andrés Estellés, s/n. 46100 Burjassot (Valencia), Spain.*

[2]*Faculty of Health Sciences, European University of Valencia, Valencia, Spain*

The almond is, among others, one of the most consumed nuts in the Mediterranean. Among its characteristics, we find that it is a great natural source of polyunsaturated fats, vitamin E, proteins, fiber, and antioxidants in which we find phenolic compounds. In addition to the almond itself, its skin also contains large amounts of flavonoids and phenolic acids. In order to be consumed, the food industry makes them a blanching treatment with hot water, in this water are found many of the water-soluble compounds from the almond that are normally wasted. One of the objectives of the Agenda 2023 of the United Nations is responsible production and consumption, within the reuse of waste. Thus, this study aims to characterize and quantify the phenolic compounds, proteins, and antioxidant capacity by FRAP and DPPH methods of almond blanching water (ABW).The ABW was filtered to eliminate impurities; for the determination of phenolic compounds, a first solid-phase extraction and a subsequent determination by HPLC-UV/VIS were performed. Total soluble proteins were determined by the Bradford method, a colorimetric reaction method. To determine the antioxidant capacity, two analytical methods were used, DPPH with Trolox as a standard, and the FRAP method based on iron oxidation.Chromatographic results show elevated concentrations of naringin (56.52 ± 0.12 µg/ml) followed by catechin (19.84 ± 0.58 µg/ml), also for p-coumaric acid (8.05 ± 0,09 µg/ml) and for rutin (9.64 ± 0.46 µg/ml), indicating that these phenolic compounds are present in the ABW. For total soluble proteins, the results showed 18.9 mg/100 ml of ABW. The antioxidant capacity by FRAP showed 280.23 ± 20.52 µMTE and for DPPH of 1115 ± 37.25 µMTE.These results confirm the hypothesis that soluble bioactive compounds pass to the ABW during the blanching process. This ABW could be used for isolating the bioactive compounds present in it for its high biological value.

COD. P041

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10685

EFFECT OF MICELLIZATION ON THE STABILITY AND INTESTINAL UPTAKE OF CHOLECALCIFEROL AND RETINOL

E. Chiarello[1], D. Vairo[2], C. Desmarchelier[2], A. Bordoni[1,3], P. Borel[2]

[1]*Department of Agricultural and Food Sciences (DISTAL), University of Bologna, Italy*

[2]*C2VN, INRAE, Aix-Marseille University, INSERM, Marseille, France*

[3]*Interdepartmental Center for Agri-food Industrial Research (CIRI Agrifood), University of Bologna, Italy*

Fat soluble vitamins are a wide family of micronutrients with different vital roles for the
human body. Vitamin A deficiency can result in vision disorders, growth retardation and skin diseases, while the lack of vitamin D can induce rickets and insufficient calcification of bones. Therefore, to better understand their stability and the mechanisms modulating their absorption is an important step toward creating a nutritional approach to the counteraction of vitamins deficiency. The aim of this study was to better specify the role of mixed micelles, which are produced in the GI tract during digestion, on the stability and intestinal uptake efficiency of vitamin A and D3. To that aim retinol and cholecalciferol were solubilized in ethanol or incorporated into synthetic mixed micelles. The stability of the vitamins was evaluated after incubation for up to 120 minutes at 37°C in a cell incubator with 10% CO2, sheltered from light. At the end of the incubation time, samples were collected and stored at -80 °C before HPLC analysis. The intestinal uptake was determined using Caco-2/TC7 cell monolayers as a model of human upper intestinal mucosa. DMEM without FBS (1 ml) containing 1 μM cholecalciferol or retinol incorporated in mixed micelles or in ethanol was added to apical chamber, whereas the basolateral chamber was filled with 2 ml of DMEM without FBS. After 30, 60 or 120 min of incubation, media from both chambers and cells were collected to perform HPLC analysis. Cholecalciferol was stable under both experimental conditions (ethanol or mixed micelles), but its intestinal uptake efficiency was higher (27%) when it was incorporated into the micelles than when it was solubilised in ethanol. Retinol solubilised in ethanol was almost completely degraded at the end of the 2-hour incubation time, while the incorporation into micelles made it more stable (94% of the initial amount remaining) and facilitated its intestinal absorption (47% as compared to retinol in ethanol). These preliminary results confirm that the incorporation of these two vitamins in mixed micelles during digestion is a key step of their intestinal absorption. Further studies will be performed to investigate how retinol and vitamin D-binding proteins affect intestinal absorption of these compounds.

COD. P042

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10686

Evaluation of the macronutrient variation intakes at baseline and after 3 months of low fructose diet

M. Chiurazzi, M. Di Costanzo, M.R. Coppola , N. Serao, A. Nastasi, G. Nasti, N. Cacciapuoti, M.S. Lonardo, B. Guida
[1]*Department of Endocrinology, Diabetes, Andrology and Nutrition, "Federico II" University of Naples, Naples, Italy.*

Hereditary fructose intolerance (HFI) is an autosomal recessive genetic disorder resulting from the enzyme fructose-1-phosphate aldolase B deficiency, responsible for the hepatic metabolism of dietary fructose. This deficiency causes a fructose-1-phosphate accumulation in the liver, kidney, and small intestine. Fructose is a monosaccharide belonging to the ketohexose family (C6H12O6), present in fruit, honey and vegetables but also in many processed foods. To date, the therapy for HFI patients is a fructose-free diet. The aim of this study was to compare the intake in patients on habitual diet with the intake of a personalized diet according to the data on fructose and derivatives content from the international food composition table and in food labeling; this balanced diet will be able to avoid nutritional deficiencies and prevent clinical symptoms in these patients. Improvements in macronutrients and fructose intake were evaluated. Patients with a previous HFI diagnosis attending at Outpatients Clinic of the Departmental program "Diet therapy in transplantation, renal failure and chronic diseases", School of Medicine, "Federico II" University of Naples, were recruited. Nutritional status and body composition assessed by Bioelectrical Impedance Analysis were detected at baseline (T0) and after 3 months; moreover, food questionnaires (FQ) to establish macronutrient and fructose intakes were administered at T0 and after 3 months of personalized diet. After 3 months, the evaluation of the intakes obtained through FQ showed a significant reduction in protein intake both in grams of protein per kilogram of ideal body weight (BW) per day (1,82±0,2vs1,21±0,3 g/kg BW,****p=0000,1) and in percentage (23,6±0,9vs19,5±1,0%,**p=0,003) as well as in fructose intake (2,4±0,78vs 1,62±0,59g,***p=0,0003); on the other hand, an increase in carbohydrate intake was observed (37,0±1,1vs43,4±1,0%,***p=0,0003).The evaluation of intakes, at baseline, showed that the diet of HFI patients, generally, is high in protein, as well as in fat and in fructose while is low in fibers, causing a long-term kidney problems and steatosis typical of this disease.The most important study goal was to offer these patients a dietary treatment aimed to educate them in food choices in order to improve their quality of life.

COD. P043

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10687

Effect of blueberry (poly)phenol metabolites on lipid accumulation in an in vitro model of obesity

S. Venturi[1], M. Rendine[1], M. Marino[1], D. Klimis-Zacas[2], P. Riso[1], M. Porrini[1], C. Del Bo'[1]

[1]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Human Nutrition, Università degli Studi di Milano, Milano, Italy*

[2]*School of Food and Agriculture, University of Maine, Orono, ME 04469, USA*

Lipid accumulation represents a fundamental process in the development of overweight and obesity. Wild blueberry (Vaccinium angustifolium) (poly)phenols metabolites (BPMs), derived by microbiota and second-phase hepatic metabolism, could exert a potential role in the modulation of adipogenesis and lipogenesis, and consequently in the reduction of obesity. However, findings are still conflicting and further studies are needed.

This study aims to evaluate the effect of BPMs on lipid accumulation and lipolysis in 3T3-L1 mature adipocytes, as a model of obesity. The phenolic compounds tested included: ferulic acid (FA), isoferulic acid (IA), syringic acid (SA), and vanillic acid (VA), as the main metabolites found in the bloodstream after the consumption of a serving of wild blueberry (≈240 g).

3T3-L1 mature cells were treated with free fatty acids (FFA; oleic/palmitic acid 750 μM, 2:1 ratio) in the presence or absence of FA (10, 100 nM), IA (100, 500 nM), VA (100, 500 nM), SA (50, 300 nM) or a mix (FA 100 nM, IA 100 nM, VA 100 nM, SA 300 nM) for 48 h. Norepinephrine 1 μM was used as a positive control. Lipid droplet accumulation was detected spectrophotometrically by using the Oil Red O staining assay. Intracellular triglycerides and glycerol release were analysed by commercial kits.

Treatment with FFA significantly increased lipid storage and lipolysis compared to the negative control ($p<0.0001$). Norepinephrine significantly reduced lipid accumulation ($p<0.05$) while increased glycerol release ($p<0.0001$) compared to FFA. The treatment with the single BPM and the mix failed to affect lipid accumulation as well as the lipolytic process, except for SA at 50 nM, which reduced glycerol release ($p<0.05$) with respect to FFA.

These preliminary findings do not seem to support the involvement of BPMs in the lipid deposition and lipolysis, in 3T3-L1 mature adipocytes. The evaluation of intracellular triglycerides together with the analysis of factors involved in lipid uptake and metabolism (e.g. lipoprotein lipase, sterol regulatory element binding protein c1, perilipin-1) will help to clarify the role of microbiota-derived polyphenol metabolites following blueberry intake in the context of overweight and obesity prevention and management.

COD. P044

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10688

A new instrument to study the impact of nutrition on gut microbiota composition: the S4H-FFQ.

M. Dello Russo[1], A. Formisano[1], P. Russo[1], A. Siani[1], R. Tremigliozzi[1], M.P. Francino[2], V. González-Vigil[3], D. Hinojosa-Nogueira[4], F. Planes[5], J.Á. Rufián-Henares[4], F. Lauria[1]

[1]*Institute of Food Sciences, National Research Council, 83100 Avellino, Italy*

[2]*Area de Genòmica i Salut, Fundació per al Foment de la Investigació Sanitària i Biomèdica de la Comunitat Valenciana (FISABIO-Salut Pública), 46020 Valencia, Spain*

[3]*Gestión de Salud y Nutrición S.L., 33003 Oviedo, Spain*

[4]*Departamento de Nutrición y Bromatología, Instituto de Nutrición y Tecnología de los Alimentos, Centro de Investigación Biomédica, Universidad de Granada, 18071 Granada, Spain*

[5]*University of Navarra, Tecnun School of Engineering, Manuel de Lardizábal 13, 20018 San Sebastián, Spain.*

Growing evidence supports the role of gut microbiota (GM) and microbial products in driving human health status. Diet alters GM, and assessing diet is a central task in nutritional interventions aimed at studying the association between diet, GM, and health status. One of the purposes of the Stance4Health (Smart Technologies for personAlised Nutrition and Consumer Engagement) project was to develop a standardised instrument for assessing dietary habits in European adults in order to give nutritional advice to positively affect GM composition. A nutritional intervention was developed, as part of the project, in order to validate in a near to operational environment specific personalised nutrition strategies able to improve human health by modulating the GM. On this occasion, a new semiquantitative food frequency questionnaire (S4H-FFQ) was developed. The S4H-FFQ was set to record the consumption frequency of 200 pan-European food items potentially affecting GM composition and functionality. Here, we report the results of a validity study that was conducted to allow assessment of the reliability of the S4H-FFQ. The evaluation of the association of dietary intake with GM composition showed that the S4H-FFQ was able to correlate specific food items with several microbial taxonomic profiles. Qualitative validation showed a comparable mean of the different food groups' frequency consumption derived from the S4H-FFQ against the validated I.Family-FFQ. The quantitative validation showed small, but statistically significant, correlation values between the energy and nutrient intakes derived from the S4H-FFQ against data collected by the nutritional app i-Diet Stance4Health. This app was developed and validated to promote balanced nutrition and healthy habits by creating personalized recommendations.In conclusion, the present study validated the S4H-FFQ for the study of the nutritional impact on GM composition. The S4H-FFQ could be considered a good instrument in epidemiologic studies where those questionnaires are the most widely used tool for assessing dietary intake.

COD. P045

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10690

The association of dietary diversity indexes with diet quality and health status of European children, adolescents and adults: results from the I.Family study

M. Dello Russo[1], A. Formisano[1], F. Lauria[1], A. Siani[1], W. Ahrens[2], R.A. Adan[3], L. Bogl[4], G. Eiben[5], S. De Henauw[6], A. Hebestreit[7], I. Timm[7], M. Hunsberger[5], L. Lissner[5], D. Molnar[8], V. Krogh[9], S. Papoutsou[10], A. Palou[11], A. Santaliestra-Pasias[12], T. Veidebaum[13], M. Wolters[7], P. Russo[1]

[1]*Institute of Food Sciences, National Research Council, Avellino, Italy*

[2]*Institute of Statistics, Faculty of Mathematics and Computer Science, University of Bremen, Bremen, Germany*

[3]*Department of Translational Neurosciences, University Medical Center Utrecht, Universiteitsweg Utrecht, the Netherlands; Institute of Neuroscience and Physiology, The Sahlgrenska Academy at the University of Gothenburg, Sweden*

[4]*Department of Epidemiology, Center for Public Health, Medical University of Vienna, Austria*

[5]*Department of Public Health and Community Medicine, Institute of Medicine, University of Gothenburg, Gothenburg, Sweden*

[6]*Department of Public Health and Primary Care, Ghent University, Ghent, Belgium*

[7]*Leibniz Institute for Prevention Research and Epidemiology - BIPS, Bremen, Germany*

[8]*Department of Pediatrics, Medical School, University of Pécs, Pécs, Hungary*

[9]*Department of Preventive and Predictive Medicine, Fondazione IRCCS, Istituto Nazionale dei Tumori, Milan, Italy*

[10]*Research and Education Institute of Child Health, Strovolos, Cyprus*

[11]*Laboratory of Molecular Biology, Nutrition and Biotechnology (Group of Nutrigenomics and Obesity), CIBER de Fisiopatología de la Obesidad y Nutrición (CIBERobn) and Instituto de Investigación Sanitaria Illes Balears (IdISBa), University of the Balearic Isl*

[12]*GENUD (Growth, Exercise, Nutrition and Development) Research Group, Faculty of Health Sciences, Universidad de Zaragoza, Instituto Agroalimentario de Aragón (IA2), Instituto de Investigación Sanitaria Aragón (IIS Aragón), Zaragoza, Spain*

[13]*Department of Chronic Diseases, National Institute for Health Development, Tallinn, Estonia*

Dietary diversity (DD) has been widely recognized as a key element of high-quality diets. Accordingly, many countries included the recommendation for a varied diet in their guidelines as effective strategy for the prevention of Non-Communicable Chronic Diseases (NCDs). DD has been linked with several health outcomes with conflicting results, especially referring to body adiposity and NCDs. This may be due to the lack of a unified method for estimating DD. In light of the contrasting results, the aim of the present study was to explore the association of two different DD indexes with anthropometric indices, biochemical parameters and diet quality in a large sample of European children, adolescents and adults from the I.Family study.

The cross-sectional analysis was performed on 3035 participants with a complete dataset of diet, anthropometric and biochemical parameters, and socio-economic status. Dietary data were collected using a 24h dietary recall. The two DD indexes were: the dietary diversity score (DDS) calculated by categorizing the food items into 5 food groups, and the Food Variety Score (FVS) calculated by considering the number of different foods consumed.

Differences in DDS were found among countries. The educational level increased as DDS tertiles increased. DDS was positively associated with diet quality in children, adolescents and adults. Across all age groups, the high DDS tertile showed high fibre, fruit and vegetable intake and meal frequency, and low consumption of UPFs. No differences were observed between DDS and anthropometric and biochemical parameters. A higher DDS was associated with a lower risk of overweight/obesity only in adults. No associations were found considering FVS.

Our findings showed that different indexes differently affected the results. Considering food groups is reasonably more accurate for estimating diet quality. This analysis is in line with several studies suggesting that DDS is not an independent risk for obesity. Public health programs should place emphasis on both improving food diversity and maintaining energy balance.

COD. P046

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10691

Hydroxytyrosol protects against Dichlorodiphenileteylene-induced oxidative damage in hepatic cell culture

V. Migliaccio[1], S. Penna[1], I. Di Gregorio[1], L. Lionetti[1]

[1]*Dip. Chimica e Biologia "Adolfo Zambellli", Univ. Salerno, Fisciano*

Exposure to environmental contaminants can produce liver damage by inducing oxidative stress and cell death. Therefore, a diet rich in antioxidant molecules is required to promote liver cell health. Hydroxythyrosol (HT) is considered one of the most powerful antioxidant compounds between phenolic compounds from olive tree followed by oleuropein and tyrosol.
Present work aimed to evaluate the effects of HT alone or in combination with the environmental pollutant Dichlorodiphenylethene (DDE), the main metabolite of the insecticide Dichlorodiphenylethane (DDT), on cell viability, morphology, and oxidative stress in hepatic cell culture HepG2. To this end, HepG2 cells were treated with DDE (30 and 100µM) and/or HT (50 and 100µM) for 24h.
Cell viability was monitored by using MTT assay. Optic microscopy and oil red-O staining approaches were used to study cell morphology and lipid accumulation in cells. In addition, TBARS analyses was used to detect lipid peroxides. The main enzymatic activities of the antioxidant system, namely superoxide dismutase (SOD), glutathione peroxidase (GPx) and catalase (CAT), were detected spectrophotometrically. Concerning SOD2 protein levels, that localizes in mitochondria, western blot analyses were used. Finally, caspase 3 (casp3) activity was detected by using a conventional kit.
Data evidenced that both 30 and 100µM DDE alters cell viability and morphology, inducing a progressive cell vacuolation, a reduction in SOD2 levels, and an increase in casp3 activity. In addition, 100µM DDE also increased lipid peroxides, indicating oxidative stress. Concerning antioxidant system, CAT activity increases with 30µM DDE.
On the contrary, HT reduced cell viability at 100 µM dose, without apoptosis stimulation, suggesting an effect on cell proliferation. No changes in lipid depots were detected at time and concentration used. Finally, antioxidant enzyme activities were found up-regulated. Interesting, DDE + HT coincubations produced benefits for cells, reverting DDE-induced lipid peroxide levels, apoptosis, and altered morphology by increasing both SOD and GPx activities.
This study showed beneficial HT effects on cell death prevention and against DDE injury, evidencing a proper role of EVOO polyphenols in liver health maintenance

COD. P047

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10693

Ultra-processed food consumption and cardiometabolic health in European children, adolescents and adults: cross-sectional results from the I.Family study

A. Formisano[1], F. Lauria[1], M. Dello Russo[1], P. Russo[1], W. Ahrens[2], S. De Henauw[3], A. Hebestreit[4], T. Intemann[4], M. Hunsberger[5], K. Mehlig[5], D. Molnar[6], L.A. Moreno[7,8], V. Pala[9], S. Papoutsou[10], L. Reisch[11], T. Veidebaum[12], G. Williams[13], M. Wolters[4], A. Siani[1], L. Lissner[5]

[1]*Institute of Food Sciences, National Research Council, Avellino, Italy*
[2]*Institute of Statistics, Faculty of Mathematics and Computer Science, University of Bremen, Bremen, Germany*
[3]*Department of Public Health and Primary Care, Ghent University, Ghent, Belgium*
[4]*Leibniz Institute for Prevention Research and Epidemiology - BIPS, Bremen, Germany*
[5]*Department of Public Health and Community Medicine, Institute of Medicine, University of Gothenburg, Gothenburg, Sweden*
[6]*Department of Pediatrics, Medical School, University of Pécs, Pécs, Hungary*
[7]*GENUD Universidad de Zaragoza, Instituto Agroalimentario de Aragón, Instituto de Investigación Sanitaria Aragón, Zaragoza, Spain*
[8]*Centro de Investigación Biomédica en Red de Fisiopatología de la Obesidad y Nutrición (CIBERObn), Madrid, Spain*
[9]*Department of Preventive and Predictive Medicine, Fondazione IRCCS, Istituto Nazionale dei Tumori, Milan, Italy*
[10]*Research and Education Institute of Child Health, Strovolos, Cyprus.*
[11]*El-Erian Institute for Behavioural Economics and Policy, Cambridge University, UK*
[12]*Department of Chronic Diseases, National Institute for Health Development, Tallinn, Estonia*
[13]*Department of Politics, Philosophy and Religion, Lancaster University, Lancaster, UK*

Recent findings from the IDEFICS/I.Family study revealed that ultra-processed foods (UPFs) contribute a large proportion of the daily energy intake in Europeans, particularly in children and adolescents. High UPFs consumption was associated with a low-quality diet and with many adverse health outcomes. The purpose of this study was to examine whether a propensity for high UPFs consumption is related to metabolic health in the large population of children, adolescents, and adults of the I.Family Study.This cross-sectional analysis included 5021 participants (525 children aged 8-10years, 2085 adolescents aged 10-15years, and 2411 adults aged >20years). In children and adolescents, a metabolic syndrome (MetS) z-score was calculated by summing age and sex standardized z-scores of the MetS risk factors. Unfavorable levels of MetS and its components were identified using a cut-off ≥ 90th percentile for each score. In adults, MetS was defined according to the latest harmonized definition as meeting three or more of the risk factors. All subjects included in this analysis completed at least one web-based 24-hour recall. Consumption of UPFs was estimated according to NOVA classification system. Multivariable regression analysis was conducted adjusting for covariates age, sex, country, parental education, body mass index, and energy intake. The mean percentage of energy from UPF was 48.0% in children (95% CI: 47.2-48.8%), 48.2% (47.7-48.6) in adolescents and 40.2% (39.8-40.6) in adults. The prevalence of MetS was 6.7%, 4.6% and 4.2% in children, adolescents and adults, respectively. In the adjusted model, there was no evidence of association between percent of energy from UPFs and MetS, or individual components of MetS, in all age groups. Growing evidence shows an elevated risk of MetS for adults consuming a high proportion of UPFs. The risk is reported to be stronger in younger adults. Less is known about the impact of UPF on metabolic health in children and adolescents. Our results suggest no association between dietary share of UPF and MetS in all age groups. Nevertheless, these results confirm that most of the total energy intake of European consumers comes from UPFs, specifically in children and adolescents.

COD. P048

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10694

Effect of Potassium Supplementation on Endothelial Function: A Systematic Review and Meta-Analysis of Intervention Studies

A. Fiore[1], A. Attanasio[1], I.L. Pizzulo[1], A. Forte[1], P. Manzi[1], V. Abate[1], L. D'Elia[1]

[1]*Dip. di Medicina e Chirurgia, U.O. Federico II*

Background: Endothelial dysfunction is an early predictor of cardiovascular diseases. Although a large body of evidence shows an inverse association between potassium intake and cardiovascular risk, the studies on endothelial function provided contrasting results. Thus, we carried out a systematic review and a meta-analysis of the available intervention studies of the potassium supplementation on endothelial function.

Methods: A systematic search of the online databases available (up to December 2022) was conducted including the intervention trials that reported flow-mediated dilation (FMD) changes-a non-invasive method of assessing endothelial function-after two different potassium intake regimens. For each study, the mean difference (MD) and 95% confidence intervals were pooled using a random effect model.

Results: Five studies met the pre-defined inclusion criteria and provided eight cohorts with 332 participants. In the pooled analysis, potassium supplementation was associated with a significant increase in FMD (MD: 0.74%), with a higher effect for a urinary potassium excretion higher than 90 mmol/day. There was a moderate heterogeneity among studies (I2 = 59%), explained by the different amount of potassium supplementation.

Conclusions: The results of our meta-analysis indicate that dietary potassium supplement improves endothelial function. This effect is directly associated with the amount of potassium supplement. The findings support the campaigns in favour of an increase in dietary potassium intake to reduce cardiovascular risk.

COD. P049

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10697

Adherence to Mediterranean diet and risk of pancreatic cancer: systematic review and meta-analysis

D. Nucci[1], M. Nardi[1], A. Cinnirella [2], E. Campagnoli[2], M. Maffeo [2], P.M. Perrone[2], V. Shishmintseva [2], F.M. Grosso[2], A. Castrofino[2], L. Romanò[2], S. Castaldi[2,3], V. Gianfredi[2]

[1]*Dietetics and Clinical Nutrition Unit, Veneto Institute of Oncology IOV-IRCCS, Padua, Italy*

[2]*Dep. of Biomedical Sciences for Health, University of Milan, Milan, Italy*

[3]*Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy*

Background & objective

Pancreatic cancer (PC) still represents one of the gastrointestinal cancers with the highest burden both in terms of incidence, prevalence and mortality rate. However, despite efforts in deeply understanding the aetiology of PC, it still remains unclear, with several identified potential risk factors, among them diet. However, little is known about the association between Mediterranean Diet (MedDiet) and risk of PC.

Methods

A systematic review with meta-analysis has been carried out according to The Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 (PRISMA) guidelines, searching on three scientific databases (PubMed/MEDLINE, Scopus, and EMBASE). The protocol was registered in PROSPERO (ID number: CRD42022367497). Newcastle-Ottawa Scale was used to assess methodological quality. Both fixed and random effect models were performed. The effect size was reported as hazard ratio (HR) with a 95% Confidence Interval (CI). I2 test was performed to measure the heterogeneity. Funnel plot and the Egger's regression asymmetry test ($p < 0.10$) were used to asses publication bias. Prometa3® software was used to perform the statistical analyses.ResultsA total of 8 articles were included. The methodological quality of the included meta-analyses was high. Our results show that higher adherence to MedDiet is associated with a lower risk of PC [HR:0.82 (0.76-0.88) $p<0.001$, based on 1,301,320 subjects].

Results

were also confirmed in sensitivity and subgroups analyses (avoidance of potential overlapping effects, type of tools to assess dietary intake and the diagnosis of PC, prevalent and incident PC risk, country where the studies took place, sex and cancer site).

Conclusions

Based on our results, and according to the NOURISHING framework developed by the World Cancer Research Found, investing public money in educating about healthy food choices might maximize healthier food choices. In this case higher adherence to MedDiet reduces risk of PC.

COD. P050

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10699

Quantifying household food waste in Italy through two different methodologies: what are the differences?

F. Grant[1], J.N. Di Veroli[1], L. Rossi[1]

[1]*Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria (Crea), centro di Ricerca per gli alimenti e la nutrizione, Roma*

Globally, it was estimated that the majority of food waste occurs at the household level (61%). In Italy, the Observatory on food surplus, recovery and waste is committed to periodically monitor the level of waste at this stage of the supply chain. Since then, a validated questionnaire has been used to measure food waste quantities in Italy. However, it is reported that this method underestimates the level of waste, while the diary is identified as a more accurate tool. To investigate the differences between these two methodologies, the Observatory developed a comparative study, carrying out two parallel data collections in July 2021: one with the questionnaire and the other one with the diary, for which the same food categories of the validated questionnaire were used. The diary was filled out daily for one week, covering the three main meals (breakfast, lunch, and dinner). The questionnaire was filled out at the end of the week. The results showed that per capita amount of waste was three times higher with the diary (763g) compared to the questionnaire (204g), with a difference of 558g estimated with the regression model. In addition, the high eta-squared value (0.14), that measures the variance proportion of waste related to the two different methods, confirms the differences that came from the two types of data collections. Analyzing the food categories, for the most wasted foods both with diary and questionnaire assessments, differences of 105g for fresh vegetables (133g diary vs 28g questionnaire), of 84g for fresh fruit (118g diary vs 34g questionnaire), of 36g for milk (52g diary vs 16g questionnaire) and of 35g for bread (69g diary vs 34g questionnaire) were observed. All these differences reported were significant with a $p < 0.001$.This study represents the first comparison in Italy of the level of household food waste measured with the validated questionnaire and with the diary. Present data confirm the underestimation of food waste with the questionnaire. However, the use of the diary has costs in terms of time and resources, and it could be difficult to use for continuous monitoring. The development of correlation indexes among the two measurements is envisaged and represents a future aim of the Observatory research work.

COD. P051

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10700

Adherence to the Mediterranean Diet and Ultra-Processed Foods Consumption in a Group of Italian Patients with Celiac Disease

M. Tristan Asensi[1], G. Pagliai[1], S. Lotti[1], A. Napoletano [1], B. Colombini [1], I. Giangrandi[1,2], M. Dinu[1], F. Sofi[1,2]

[1]*Department of Experimental and Clinical Medicine, University of Florence, 50134 Florence, Italy*

[2]*Unit of Clinical Nutrition, Careggi University Hospital, 50134 Florence, Italy*

Background: Although the only dietary restriction for people with celiac disease (CD) is the exclusion of gluten, the nutritional adequacy of this diet remains controversial, as some studies suggests that the gluten-free diet is not balanced. Evidence on the consumption of ultra-processed foods (UPF) in adults with CD and its impact on Mediterranean Diet (MD) adherence is still limited.

Aim: To determine the consumption of UPF and its possible relationship with MD adherence in a group of adults with CD compared to a group of adults without this condition.

Methods: This case-control study included 103 adults with CD and 312 adults without CD. UPF intake was assessed using the NOVA Food Frequency Questionnaire (NFFQ), while MD adherence was assessed using the Medi-Lite score.

Results: UPF represented 14.5 ± 8% of the diet of participants with CD corresponding to 246 ± 139.2g of UPF per day, and came mainly from cereals-based products (29%) and sweets and sweeteners (24.2%). UPF consumption did not differ with the presence of CD, but participants with CD had significantly higher consumption of ready-to-heat pasta ($p = 0.033$) and pre-packaged breads and bread alternatives ($p = 0.012$) than participants without CD (+32% and+25.5%, respectively). Participants with CD also reported a significantly ($p < 0.001$) lower MD adherence than participants without CD (9.4 ± 2.2 vs. 10.4± 2.5), with significantly ($p<0.05$) higher consumption of non-traditional Mediterranean foods, such as meat and dairy products, and lower consumption of traditional foods, such as vegetables and fish. Furthermore, an inverse trend was found between UPF consumption and MD adherence in adults with CD, although not statistically significant.

Conclusion: These findings highlight the importance of improving nutrition education for subjects with CD, which should not only focus on gluten exclusion. Special attention should be paid to the intake of gluten-free products, while encouraging the consumption of naturally gluten-free cereal products in order to limit UPF consumption by people with CD.

COD. P052

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10702

The promotion of best practices in primary school food service: interventions in the City of Parma

A. Fortini[1,2], B. Biasini[1], F. Scazzina[1]

[1]*Human Nutrition Unit, Department of Food and Drug, University of Parma, Italy*

[2]*School Food Service Bureau, Department of Education, Municipality of Parma, Italy*

For the Municipality of Parma, school canteens are the setting for applying social and low-impact environmental policies. However, to promote best practices it is necessary to deeply analyse the school canteen system and the factors that influence the service. The literature reports monitoring and interventions on individual aspects related to school meal consumption, often carried out from outside the system itself, but this approach has proven to be insufficient and incomplete. Therefore, one of the strengths of this work is the internal analysis that focused on the adequacy of organizational, administrative, accounting arrangements and the monitoring of the food selection and menu drafting system. A strategic design was implemented to consistently control the multiple dimensions of school food service analysis and intervention. The school catering service was evaluated both through user satisfaction (a subjective measure) and through the objective measurement of its efficiency and quality using tools such as the Global Service Index (GSI) and the consumption survey in the school canteens. IGS is derived from a control scheme and monitoring based on a shared statistical system for audit management that allows measuring the quality objectively in order to make the result reliable and representative of the entire service. The measurement of plate waste made it possible to observe not only the extent of waste, but also a significant deviation between the quantities of food discarded in schools served by internal kitchens and those equipped with terminal kitchens. The study made it possible for the first time in this context to implement interventions and analyse the results of actions (best practices) carried out on the entire school catering service system; concretising the concept that a municipality is a service provider to all intents and purposes. Therefore, best practices represent a valid and applicable tool to dimension the service, its efficiency, effectiveness and economy, confirming not only as useful, but as an added value. What emerges is the urgency for the stakeholders to use all available tools to implement best practices, with consequent benefits for overall health. The synergy of action was the strong commitment of research.

COD. P053

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10703

Nutritional assessment in pancreatic cancer: state-of-the-art and future challenges

F. Frigerio[1], C. Piciocchi[1], F. Ricci[1], G. Di Bello[1], D. Sarti[1], E. Poggiogalle[1], E. Azzini[2], A. Polito[2], L. Scalfi[4], I. Savini[3], L.M. Donini[1], A. Pinto[1], On Behalf Of The SINU Group On NUTRITION IN ONCOLOGY

[1]*Department of Experimental Medicine, "Sapienza" University of Rome, Rome, Italy*

[2]*Council for Agricultural Research and Economics-Research Centre for Food and Nutrition, 00178, Rome, Italy*

[3]*Department of Experimental Medicine, University of Rome "Tor Vergata", Italy*

[4]*Department of Public Health, School of Medicine, Federico II University, Naples, Italy*

Background Undernutrition/malnutrition among patients affected by pancreatic cancer (PaC) is highly prevalent: for instance, up to 80% of them may suffer from the ''cancer anorexia–cachexia syndrome'' (CACS), with reduced muscle and adipose tissue mass in the context of underweight. In spite of the available nutritional assessment tools, nutritional risk is frequently adopted by clinicians to diagnose undernutrition. The main purpose of this review is to identify, in the setting of PaC, the most accurate nutritional assessment tool (i.e. the standard criterion) among those applied in published clinical studies. The secondary aim is to investigate the prevalence of undernutrition and sarcopenia and their impact on patients' health prognosis and quality of life (QoL).

Methods Bibliographic search was performed in the MEDLINE/Pubmed database. Studies on undernutrition (including the SGA, PG-SGA and MNA-LF questionnaires and the GLIM, ESPEN 2015 and ASPEN/AND criteria) and sarcopenia (according to the EWGSOP2 criteria) were included.

Results The vast majority of data came from longitudinal and cross-sectional studies, with SGA and PG-SGA serving as the reference methods for nutritional assessment. Overall, undernutrition was associated with worse survival rates and a higher rate of post-operative complications, in addition to lower chemotherapy tolerance. Moreover, malnutrition incidence seemed to peak after chemotherapy, due to its numerous side effects. Sarcopenia was highly prevalent among PaC patients (~ 40%), with upper limbs muscle mass and strength displaying a positive association with health-related QoL. Finally, functional status assessed by the ability to perform activities of daily living (ADLs) emerged as the most consistent predictor of postoperative outcomes, independent of chronological age.

Conclusion While SGA and PG-SGA are used as reference methods for nutrition assessment, there is currently a lack of universal consensus on the most accurate nutritional assessment tool. Undernutrition and sarcopenia pose a great burden on the prognosis and QoL of PaC patients. For this reason and according to the GLIM approach, further research is needed to identify the most appropriate nutritional diagnostic tool in this specific type of cancer.

COD. P054

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10704

Investigating on the nutritional value of fish. Effect of aquaculture feed and cryosmoking treatment on the fatty acid composition of salmon fillets.

G. Antonelli[1], F. Capozzi[1,2], P. Rocculi[1,2], A. Bordoni[1,2]
[1]*Department of Agricultural and Food Sciences (DISTAL), University of Bologna, Cesena, Italy*
[2]*Interdepartmental Centre for Agri-food Industrial Research (CIRI Agrifood), University of Bologna, Cesena, Italy*

Fish is the source of n-3 long chain polyunsaturated fatty acids (n-3 LC PUFA) in the human diet. Currently, about 50% of the fish consumed in the EU is from aquaculture and research has focused on the substitution of marine ingredients for plant ones in aquaculture feed due to the increasing scarcity of marine resources - fish oil and fish meal - and the enormous environmental impact of these raw materials. Furthermore, as fish is highly perishable due to its high content in n-3 LC PUFA advanced preservation techniques such as cryosmoking have been developed to improve its safety and shelf-life. This study aimed to evaluate the impact of an innovative diet and cryosmoking treatment on the fatty acid composition of salmon fillets. Salmon were fed either a conventional or an innovative diet. The fillets were randomly dived into two groups, either treated or not with cryosmoking. Fatty acids were extracted according to the Bligh & Dyer method [1]and quantified by gas chromatography. Salmons fed the conventional diet had higher percentages of n-3 LC PUFA; in contrast, salmons fed the innovative diet had increased percentages of C16:0, C18:2 n-6 and C18:3 n-3. The differences found in the untreated samples mirrored the diet composition and were maintained after cryosmoking. Overall, this study provided further information on the impact of the substitution of animal ingredients with plant-based ones in aquaculture feed, confirming that it causes a small but significant difference in the lipid profile of salmon fillets, as previously described [2]. The reduced nutritional value of salmon fed the innovative diet highlights the need of further studies on aquaculture feed to balance the environmental and the nutritional perspective.

References:
[1] Bligh, E.G. and W.J. Dyer, A rapid method of total lipid extraction and purification. Can J Biochem Physiol, 1959. 37(8): p. 911-7.
[2] Bell, J.G., et al., Replacement of dietary fish oil with increasing levels of linseed oil: modification of flesh fatty acid compositions in Atlantic salmon (Salmo salar) using a fish oil finishing diet. Lipids, 2004. 39(3): p. 223-32.

Funding: This study was supported by the EU project FuturEUAqua (GA 817737).

COD. P055

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10707

“Dietary Potassium Intake and Risk of Diabetes: A Systematic Review and Meta-Analysis of Prospective Studies”

A. Attanasio[1], A. Fiore[1], N. Altavilla[1], I.L. Pizzulo[1], P. Manzi[1], A. Forte[1], A. Vergatti[1], L. D'Elia[1]

[1]*Dip. di Medicina Clinica e Chirurgia, Università degli Studi di Napoli “Federico II”*

Background: Dietary potassium intake is positively associated with reduction of cardiovascular risk. Several data are available on the relationship between dietary potassium intake, diabetes risk and glucose metabolism, but with inconsistent results. Therefore, we performed a meta-analysis of the prospective studies that explored the effect of dietary potassium intake on the risk of diabetes to overcome these limitations.

Methods: A random-effects dose-response meta-analysis was carried out for prospective studies. A potential non-linear relation was investigated using restricted cubic splines.

Results: A total of seven prospective studies met the inclusion criteria. Dose-response analysis detected a non-linear relationship between dietary potassium intake and diabetes risk, with significant inverse association starting from 2900 mg/day by questionnaire and between 2000 and 5000 mg/day by urinary excretion. There was high heterogeneity among studies, but no evidence of publication bias was found.

Conclusions: The results of this meta-analysis indicate that habitual dietary potassium consumption is associated with risk of diabetes by a non-linear dose-response relationship. The beneficial threshold found supports the campaigns in favor of an increase in dietary potassium intake to reduce the risk of morbidity and mortality. Further studies should be carried out to explore this topic.

COD. P056

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10708

The use of unconventional feedings from the industrial waste of oilseeds in dairy goat nutrition: effects on the nutritional quality of milk and dairy products and on human health

M. Tristan Asensi [1], G. Pagliai [1], M. Dinu[1], S. Lotti[1], A. Napoletano[1], I. Giangrandi[2], B. Colombini [1], G. Invernizzi[3], A. Buccioni[4], F. Sofi[1,2]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy*

[2]*Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*

[3]*Department of Veterinary Sciences, University of Milan, Milan, Italy*

[4]*Department of Agriculture, Food, Environment and Forestry, University of Florence, Florence, Italy*

Background: Industrial by-products of oilseeds (Cynara cardunculus and Camelina sativa) (CACD) are rich in bioactive compounds. In recent years, a role for these by-products as unconventional feedings for dairy goat nutrition has been hypothesized. However, data on the effects of these by-products on the nutritional quality of milk and on human health are limited.

Aim: To evaluate the potential effect on human health of the consumption of yogurt made from goat milk fed with unconventional ingredients derived from industrial residues of CACD.

Methods: In this randomized, crossover clinical trial, 20 clinically healthy adults (14F; mean age 37.7±14.2 years) were randomly assigned to take one yogurt made from goat milk fed with CACD or regular goat yogurt daily for 1 month in each phase. Anthropometric, body composition and blood samples were collected from each subject at the beginning and end of the intervention phase.

Results: After consumption of CACD yogurt, a reduction in the percentage and kg of fat mass (-1.5%, p=0.035; -0.9kg, p=0.042, respectively) and an increase in the percentage and kg of fat-free mass (+1.5%, p=0.035; +0.9kg, p=0.023, respectively) was evidenced. As for blood parameters, a decrease in calcium (-0.3mg/dL; p=0.028) and sodium levels (-1.6mEq/L; p=0.001) after taking CACD yogurt, with significant differences between the two groups in sodium levels (p=0.045) was reported. Analyzing the differences by sex, HDL showed an opposite trend of variation (p=0.043) between men (-7.7mg/dL) and women (+0.7mg/dL) after taking CACD yogurt. Regarding inflammatory parameters, after CACD yogurt consumption, subjects showed an increased, but not significant, trend for levels of IL-1ra (+38.5pg/mL), especially in women (+60.4pg/mL) compared to men. In addition, a similar non-significant trend of reduction in IL-2 levels (-0.3pg/mL) was observed, especially in men (-0.6pg/mL).

Conclusion: The use of unconventional feedings obtained from by-products of the industrial waste of oilseeds, used for dairy goat nutrition, reported possible beneficial effects on human health, determining an amelioration of the body composition and a trend of improvement for inflammatory profile.

Funded by Ministero dell'agricoltura, della sovranità alimentare e delle foreste.

COD. P057

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10709

Ultra-Processed Food Consumption and Sleep Quality in a Cohort of Southern Italian Individuals

A. Leonardi[1], G. Grosso[1], S. Castellano[2], J. Godos[1]

[1]*Department of Biomedical and Biotechnological Sciences, University of Catania, Catania, Italy*

[2]*Department of Educational Sciences, University of Catania, Catania, Italy*

The level of food processing has been the focus of major attention due to its potentially adverse effects on human health. However, studies exploring its relation with sleep quality are still limited. This study aimed to investigate whether the consumption of ultra-processed foods (UPFs) is associated with sleep quality in a cohort of Southern Italian individuals. A total of 1546 adults were selected for inclusion in the study. Dietary data were collected using food frequency questionnaires (FFQs) and the NOVA classification was used to categorize food groups by level of processing. The Pittsburgh Sleep Quality Index (PSQI) was used to assess sleep quality. In the multivariate model adjusted for potential confounding factors, individuals in the highest quartile of UPF intake were less likely to have adequate sleep quality than those consuming less daily energy shares from UPFs [odds ratio (OR) = 0.65, 95% confidence interval (CI): 0.43, 0.99]. Among individual domains of sleep quality, UPF consumption was significantly associated with both sleep latency (OR = 0.66, 95% CI: 0.44, 0.98 for Q5 vs. Q1) and sleep efficiency (OR = 0.65, 95% CI: 0.43, 1.00 for Q5 vs. Q1), while no other aspect of sleep quality was individually associated with UPF consumption. In conclusion, an association between higher UPF consumption and poorer sleep quality was found in Southern Italian adults.

COD. P058

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10710

Nutritional Counseling in Athletes: a Systematic Review

F. Quintiero[1], S. Fiorini[1,2], L.D.C.L. Neri [2], M. Guglielmetti[1,2], A. Tagliabue[2], E. Pedrolini[3], P.A. Quatromoni[4], C. Ferraris[1,2]

[1]*Laboratory of Food Education and Sport Nutrition, Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy*

[2]*Human Nutrition and Eating Disorder Research Center, Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy*

[3]*Independent Dietitian*

[4]*Department of Health Sciences, College of Health and Rehabilitation Sciences: Sargent College, Boston University, Boston, MA, USA*

Background: Many studies report poor adherence to sports nutrition guidelines, but there is a lack of research on the effectiveness of nutrition education and behavior change interventions in athletes. Some studies among athletes demonstrate that food education alone is insufficient to result in behavior change. For this reason, nutrition education should be implemented in the context of nutritional counseling (NC). NC is a supportive process delivered by a qualified professional who guides the client to set priorities, establish goals and create individualized action plans to facilitate behavior change. To our knowledge, the efficacy of NC provided to athletes has not been comprehensively reviewed.

Aim: Investigate the efficacy of NC in athletes.

Methods: A systematic literature review was performed based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses method. The search was carried out in: PubMed, Scopus, Web of Science, Science Direct, Cochrane Library between November 2022 and February 2023. Inclusion criteria: recreational and elite athletes; all ages; all genders; NC strategies. The risk of bias was assessed using the RoB 2.0 Cochrane tool. The quality of evidence checking was tested with the Mixed Methods Appraisal Tool system

Results: From 2,438 records identified, 10 studies were included in this review, with athletes representing different levels of competition and type of sports. The most commonly applied theory was Cognitive Behavioral Theory. NC was delivered mainly by nutrition experts. The duration of the intervention ranged from 3 weeks to 5 years. Regarding the quality of the studies, the majority of articles reached more than 3 stars and lack of randomization was the domain contributing to higher risk of bias. There is evidence of a positive impact when applying NC to eating disorders in sport. Some studies showed an improvement in nutrition knowledge and positive dietary change in athletes to whom NC was delivered.

Conclusions: The results suggest the importance of NC as an effective strategy to improve athletes' dietary behavior. However more studies are needed of sufficient rigor and using prospective study designs to demonstrate the benefit and differentiate NC from food education.

COD. P059

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10711

Fats in foods. Are we telling the truth?

T. Montebugnoli[1], G. Antonelli[1], E. Chiarello[1], F. Danesi[1,2], A. Bordoni[1,2]

[1]*Department of Agricultural and Food Sciences (DISTAL), University of Bologna, Cesena, Italy*

[2]*Interdepartmental Centre for Agri-food Industrial Research (CIRI Agrifood), University of Bologna, Cesena, Italy*

Lipids are macronutrients with an energy yield of 9 kcal/g. According to LARN, they should provide a maximum of 35% of daily energy intake, which corresponds to about 78 g in a 2000 kcal diet, of which no more than 15 g should be saturated fat (<10% of total energy). High-fat diets increase the risk of many diseases and to increase consumer awareness of limiting high-fat foods total and saturated lipids are considered in the calculation of the nutrient score. However, the nutrient score and the nutritional label are based on the chemical composition of the food and do not consider bioaccessibility, i.e. the percentage of the nutrient that is released from the food matrix during digestion and made available for absorption. In this study, we evaluated the bioaccessibility of lipids in three commercial foods: biscuits, nuts and canned pickled mackerel. The foods were digested in vitro according to the INFOGEST protocol (1) and lipids were extracted from the soluble fraction and from the pellet using two different methods (2, 3). The lipids were weighed, methyl esterified and the fatty acid methyl esters quantified by gas chromatography. Regardless of the extraction and quantification methods, the percentage quantity of lipids released from the food matrix after in vitro digestion and therefore possibly absorbed, was different in the three foods. This highlights that the fat concentration may not reflect the physiological effects of the food, including its energy content, and the bioaccessibility of lipids should be carefully considered.

References (1) A. Brodkorb et al. INFOGEST static in vitro simulation of gastrointestinal food digestion. Nature protocols, 14 (4) (2019), pp. 991-1014; 2) Bligh, E.G. and W.J. Dyer, A rapid method of total lipid extraction and purification. Can J Biochem Physiol, 1959. 37(8): p. 911-7; (3) Folch J, Lees M, Stanley GHS. A simple method for isolation and purification of total lipids from animal tissues. J Biol Chem. 1957; 1:497-509. Funding: This study was supported by the Italian Ministry of University and Research, CUP D93C22000890001, project ON Foods (Project code PE00000003).

COD. P060

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10712

Application of the FoodEx2 system for the classification and description of the food list in the Italian dietary surveys IV SCAI

L. D'Addezio[1], A. Turrini[1], S. Sette[1], C. Le Donne[1], R. Piccinelli[1], L. Mistura[1], D. Martone[1], G. Catasta[1], F.J. Comendador Azcarraga[1], M. Ferrari[1]

[1]Council for Agricultural Research and Economics, Research Centre for Food and Nutrition (CREA Food and Nutrition), Rome, Italy

The compilation of the food list for data collection in a dietary survey is of central importance and has an impact on the quantity and quality of the information. The list is derived from previous surveys and food composition tables, includes all food items, i.e., foods, beverages, and dietary supplements most consumed in the country, and is open-ended to allow new items to be added during the data collection. It is the core around which the dietary software for recording and managing food consumption data is developed. It facilitates interviewing and data entry, if foods are sufficiently described, and supports harmonised data collection. By defining food categories that are representative of the consumption of the reference population, developing the national food list is a first step towards standardising the data collection process.

In Italy, between 2017 and 2020, CREA Research Centre for Food and Nutrition carried out the latest dietary surveys IV SCAI CHILD and IV SCAI ADULT as part of the EFSA EU-Menu programme. The FoodEx2 classification and description system was used to classify around 5,000 items (including synonyms) recorded in the surveys, of which around 400 were common to both the child and adult surveys. The categorization of the food list included 20 of the 21 groups at Level 1 of the Exposure Hierarchy. Items under "Composite dishes" were required to be disaggregated and described at the ingredient level. The FoodEx2 system is particularly flexible, allowing a large set of categories defined at a high level of detail (core and extended terms) to be combined with additional descriptors (facets) to cover other relevant characteristics, thus creating new categories for specific study purposes. This minimised the loss of information inevitably associated with this process and allowed the items on the food list of the IV SCAI surveys to be classified appropriately.

The classification with FoodEx2 represented a step forward in standardisation, previously available in the FoodEx1 version and mapped to the LanguaL thesaurus, as the reference food categories at country level will be easily comparable with items from different food databases at national and international level, which is also a prerequisite for informed risk assessment and management.

COD. P061

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10714

Urinary Advanced Glycation End (AGEs) products are associated with circulating miRNAs in children and adolescents with obesity: a pilot study on the Italian I.Family Cohort

F. Lauria[1], P. Russo[1], I. Sirangelo[2], A. Siani[1], G. Iacomino[1]

[1]*Istituto di Scienze dell'Alimentazione, Consiglio Nazionale delle Ricerche, Avellino*

[2]*Dipartimento di Medicina di Precisione, Università degli studi della Campania Luigi Vanvitelli, Napoli*

Due to the high variety of food ingredients and the processing at high temperatures, the Western diet is considered constitutively rich in dietary advanced glycation end (AGEs) products. These compounds are only partially cleared after intake and are to some extent absorbed in the gastrointestinal tract before entering into the bloodstream, accumulating in the tissues, and increasing the systemic load. AGEs have been characterized as also being continuously formed in vivo under normal conditions and generated more quickly in response to oxidative stress and hyperglycemia, or as a byproduct of lipid peroxidation. Besides, their accumulation on vulnerable plasma proteins and in tissues throughout life is considered a contributing factor to the typical physiological decline associated with ageing, and an indicator of increased risk for cardiovascular disease, liver and kidney disease, neurodegenerative diseases, complications from diabetes, bone and muscle disease, mental health conditions, and others.

The current study aimed to identify the potential relationship between urinary AGEs, as determined by fluorescence spectroscopy, and circulating miRNAs (c-miRNAs) in a group of children and adolescents with obesity from the Italian cohort of the I.Family project, looking for early metabolic changes and prospective markers for AGE-induced injury and subchronic inflammation.

Preliminary results indicate conceivable crosstalk between urinary AGEs and four candidate c-miRNAs, including miR-10b-5p, miR-501-5p, miR-874-3p, and miR-2355-5p. Because levels of AGEs and calories consumed can determine obesity and the resulting low-grade inflammation it is difficult to distinguish the contribution of each of these factors.

Detection of c-miRNAs could be useful to study the etiopathogenetic mechanisms in AGEs-induced damage, which have traditionally been documented in chronic age-related inflammatory disorders, and as prospective biomarkers of susceptibility to disease, disease state, and/or responsiveness to dietary interventions even in the healthy-age pediatric group. This last point is of relevance given the difficulty of assessing AGEs body content. More research and large-scale genetic studies are suggested to assess the role of the identified miRNAs.

COD. P062

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10715

Evaluation of Phenols/Flavonoids, Fatty Acids and Minerals Content in Camel Milk

S. Perna[1], A. Freije[2]

[1]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Human Nutrition, Università degli Studi di Milano, Milano, Italy*

[2]*Department of Biology, College of Science, University of Bahrain, Kingdom of Bahrain*

Camel milk is closer to human milk than any other milk. Camel milk is different from other ruminant milk, having low high minerals, vitamins, and antioxidant compounds. A preliminary report done in Morocco showed that camel's milk is rich in flavonoids (29.05 mg EQ/l) and polyphenols 35.45 mg GAE /l. The aim of this study was to evaluate the Phenols/Flavonoids, Fatty Acids and Minerals content in Camel Milk.Forty camel milk samples were collected from September 2022 to January 2023 to assess the total flavonoids, phenolic, fatty acids, and minerals content in camel milk in Bahrain. The variations in terms of these parameters have been assessed during summer, autumn and winter season. This study showed that the season did not significantly affect all investigated parameters. The level of phenolics was 20.2 mg GAE /l (median level) and of flavonoids was 31.3 mg EQ/l (median level). Highest levels have been recorded during the winter season for flavonoids (maximum peak at 60 mg EQ/l). The FRAP was 4. 73 iq l (median level). The palmitic acid and cetoleic acid were the most common fatty acids in camel milk. During the summer season the median level of Ca was over 800 mg/l and the median level of K was over 100 mg/l.Camel milk possesses high nutritional value, and it can provide several health benefits because of its composition rich in calcium and flavonoids. Based on these data, evidence indicates that there is not any seasonal effect on camel milk and that there is the possibility of converting camel milk into products through optimization of the processing parameters.

COD. P063

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10716

EVALUATION OF EATING HABITS AND LIFESTYLES OF WORKERS OF A CONSTRUCTION COMPANY SITUATED IN THE TERRITORY OF ASL TO5

C. Di Mari[1], M.C. Minutolo[1], D. Alescio[1], A. Aldrighetti[1], M. Gulino[1]

[1]*S.C. Igiene degli alimenti e della Nutrizione - Dipartimento di prevenzione - ASL TO5*

Introduction

The Workplace Health Promotion (WHP) is a preventive strategy which aims to improve the health and well-being of people in their working context through coherent actions and interventions.

In 2022, healthcare workers from the S.S. Hygiene of Nutrition of the ASL TO5 collaborated on a project for the WHP, investigating the eating habits and lifestyle of the workers of a construction company in Carmagnola (TO). The results of the survey led to ad hoc interventions to identify specific needs and promote healthy lifestyles.

Materials and Methods

In a first phase, meetings were held in the presence of the personnel of the ASL TO5, the employer and the company doctor, to illustrate the project, the information materials and collect information about the company and its employees .

A 15 questions questionnaire was submitted to investigate the nutritional status, eating habits, adherence to the Mediterranean diet and lifestyles of the participants.

Results

A total of 57 subjects (50 M, 6 F) participated in survey and among these, 12 belong to the administrative staff and 45 are workers. The average age is 44 years.

From the Body Mass Index (BMI) evaluation emerged that 28% of the subjects were of “normal weight”, 51% were “overweight” and 21% “obese” (I degree obesity).

Regardinig eating habits: 28% of respondents believe they are following a Mediterranean diet and that their habits are correct, 35% declare that they do not have correct habits but want to improve them; 40% of the subjects declare that they do not have a healthy lifestyle and 26% that they do not have it but want to improve it.

The subjects who adhere to the Mediterranean diet in "not adequate" way are 30%, 58% in "poorly adequate" and 12% "sufficiently adequate".

Moderate and intense physical activity is not carried out by 51% of subjects.

Discussion

The evaluation of the collected data led to a food education intervention whose effects will be evaluated shortly. The intervention provided information on correct nutrition and tried to stimulate the empowerment of workers. In addition, advice was given on what to eat during lunch for a nutritionally correct meal; in fact, it emerged that 87% of workers eat in restaurants/bars and only 13% at work with meals from home.

COD. P064

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10717

KNOWLEDGE, ATTITUDES AND EATING BEHAVIOR OF PREGNANT WOMEN: OBSERVATIONAL STUDY OF THE DEPARTMENT OF PREVENTION ASL BENEVENTO ON CHILDREN IN THE DEPARTMENT OF OBSTETRICS AND GYNECOLOGY OF THE "SACRED HEART OF JESUS FATEBENEFRATELLI" HOSPITAL IN BENEV

S. Pellino[1], M. Luciano[1], T. Zerella[1], M. De Fazio[3], G. Volpe[4], M. Ferraro[2], R. Buccico[2]

[1]*Dipartimento di Prevenzione ASL Benevento*

[2]*Ospedale Sacro Cuore di Gesù Fatebenefratelli Benevento*

[3]*Direzione Sanitaria ASL Benevento*

[4]*Direzione Generale ASL Benevento*

Pregnancy has always been a moment of great importance for women, characterized by significant individual, social and psychophysical changes that the gestation period itself entails. This context includes the importance of acquiring new knowledge and evaluating adherence to the best scientific evidence, in this case those concerning the rules of hygiene in pregnancy such as the importance of the future mother's diet and lifestyle for primary prevention of the fetus.

Knowledge, attitudes and eating behaviors assumed during the pregnancy period were detected through the administration of a questionnaire, in the form of an interview, to a sample of women who have recently given birth during their postpartum hospital stay by the health personnel of the Prevention Department of the ASL of Benevento, assisted by the midwives of the Obstetrics and Gynecology department of the "Sacred Heart of Jesus Fatebenefratelli" Hospital in Benevento.
The questionnaire, anonymously, is divided into sections with questions relating to the mother's socio-anagraphic situation, knowledge of hygiene during pregnancy and the sources of acquisition of this information, habits regarding lifestyle, nutrition and possible supplementation with supplements, medical investigations carried out during pregnancy. Furthermore, at the end of the questionnaire some neonatal outcomes were collected (Apgar index, birth weight, time of birth) in order to compare them with data in the literature. The administration of the questionnaires has begun in January 2023 and the collection phase is still ongoing.

The objective of the study is to evaluate the knowledge, attitudes and lifestyle, in particular referring to nutrition, of new mothers, in order to implement food education interventions aimed at prevention and health promotion to reduce the rate of obesity and gestational diabetes in pregnant women. The latter are important risk factors for neonatal macrosomia, preterm birth, and birth-related complications. Therefore, the need to educate to a healthier and more aware lifestyle is highlighted.

COD. P065

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10718

Mapping of nutrient and non-nutrient intake and effects on nutritional status in the Italian population - the NUTRIPOP study -: protocol for a systematic review

I. Cioffi[1], D. Martini[1], P. Riso[1,2], M. Marino[1], S. Perna[1], M. Tucci[1], A. Trezza[1], S. Venturi[1], M. Rendine[1], A. Polito[3], E. Azzini[3], L. Censi[3], R. Canali[3], A. Leone[2], A. Battezzati[2,4], C. Del Bò[1,2]

[1]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Human Nutrition, Università degli Studi di Milano, Milano, Italy*

[2]*International Center for the Assessment of Nutritional Status and the Development of Dietary Intervention Strategies (ICANS-DIS), Department of Food, Environmental and Nutritional Sciences (DeFENS), Università degli Studi di Milano, Milano, Italy*

[3]*Council for Agricultural Research and Economics – Research Centre for Food and Nutrition, Roma, Italy*

[4]*Clinical Nutrition Unit, Department of Endocrine and Metabolic Diseases, Istituto Auxologico Italiano, IRCCS, Milano, Italy*

The assessment of nutrient intake plays a crucial role in highlighting potential nutritional deficiencies in the general population. Also, the intake of non-nutrients such as bioactive compounds (e.g., polyphenols, carotenoids and glucosinolates) is getting a greater attention for their potential beneficial effects on health. Nevertheless, an overview of nutrient and non-nutrient intakes in the Italian population is at present lacking.

Within the ONFOODS project, a systematic review has been developed with the aim of mapping and summarizing available data and evidence on the intake of macro and micro-nutrients, as well as bioactive compounds, consumed by different groups within the Italian population, highlighting their impact on nutritional status.

A bibliographic search, restricted to human studies, has been carried out in PubMed, Embase, Cochrane library, SCOPUS and CINAHL plus hand reference/citation checking. The search syntax is conducted using database specific subject headings and keywords (e.g., macro and micro-nutrients, bioactive compounds). Studies evaluating dietary intake and/or bioactive components and nutritional status are included, with the exception of case reports, surveys, abstracts, and personal communications. Only studies carried out in healthy Italian subjects aged ≥18 years will be selected following the PRISMA guidelines.

Evidence will be synthesized also considering subgroup analyses, sensitivity analysis and meta-regression tests. These results will provide a picture of the current nutrient and non-nutrient intake and status in the Italian population and will be useful for the identification of the gaps of information to be covered within the ONFOODS project.

Funder: Project funded under the National Recovery and Resilience Plan (NRRP), Mission 4 Component 2 Investment 1.3 - Call for proposals No. 341 of 15 March 2022 of Italian Ministry of University and Research funded by the European Union – NextGenerationEU; Award Number: Project code PE00000003, Concession Decree No. 1550 of 11 October 2022 adopted by the Italian Ministry of University and Research, CUP D93C22000890001, Project title “ON Foods - Research and innovation network on food and nutrition Sustainability, Safety and Security – Working ON Foods”.

COD. P066

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10720

Food education project "Good food and good health" Euroflora 2022

E. Proietti[1], C. Borgarelli[1,6], M. Ierardi[2], L. Giovene Buller[1], E. Formisano[1,6], L. Andena[6], S. Raspino[6], R. Solinas[3], M. Borriello[3], L. Sciarpa[3], C. Baldacci[4], A. Cresta[4], G. Poggio[5], A. Scinto[5], A. Comenale[5], M. Siri[5], F. Sofi[7], L. Pisciotta[1,6]

[1]*Dipartimento di Medicina Interna-Università degli Studi di Genova*

[2]*Ospedale Policlinico San Martino di Genova*

[3]*Istituto Pediatrico di Ricovero e Cura a Carattere Scientifico Giannina Gaslini di Genova*

[4]*IPSEOA Marco Polo di Genova*

[5]*IPSSA Bergese di Genova*

[6]*IISS Marsano di Genova*

[7]*Dipartimento di Medicina Sperimentale e Clinica-Università degli Studi di Firenze*

Background and Aims: Euroflora is one of the main floral events in Europe. For the visibility to a national and international public, it is also considered one of the most important events all over the Ligurian area. Polyclinic Hospital San Martino, in collaboration with Unige Dietetics Degree Course, Agricultural Institute of Marsano, Marco Polo and Bergese Hotel Institutes of Genoa, decided to take part in this event setting up a stand to promote health and food education, based on concept “good food and good health”.

Methods: The 80 mq of stand, decorated with edible flowering plants and aromatic herbs belonging to Mediterranean scrub by agricultural school students, hosted a synergistic vegetable garden. The Dietetics degree course in collaboration with Hotel Institutes prepared informative material: a brochure showing nutritional properties of plants and flowers present in the stand and a "health" recipe book that suggests the use of these plants, with a view to food sustainability. The activity at Euroflora was an integral part of the internship of the students of the Degree Course who carried out food education activities, also submitting the Medi-lite questionnaire to the participants and providing personalized indications in relation to the score obtained.

Results: 884 people visited the Polyclinic stand, completed the Medi-lite questionnaire and received personalized indications to improve their eating habits. From the preliminary analysis of the questionnaires, the mean adherence score was 12 ± 2, significantly higher in women than in men ($p=0.022$). Analyzing the main components, we observed that the Medi-Lite items on the consumption of some products generated response clusters. Subjects who consume more meat, tend to eat more dairy products as well, so it could be index of a fattier diet. By contrast, subjects who consume more fish also consume more fruits and vegetables, with a trend to prefer healthier foods.

Conclusion: Although the sample's adherence to the Mediterranean Diet score is good/moderate, initiatives such as Euroflora's "Good food and good health" could foster a synergistic action between the education world and the scientific world, in order to increase responsibility and awareness of citizens in compliance with correct eating habits in a non-healthcare setting.

COD. P067

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10721

A web-based nutrition education course to promote a healthy diet and improve pulses consumption

G. Vici[1], D. Camilletti[1], L. Malandrino[1], L. Belli[1], V. Polzonetti[1]

[1]*School of Biosciences and Veterinary Medicine, University of Camerino*

As inappropriate eating habits are widespread in the population, nutrition education projects should be encouraged. The use of technology could be a useful strategy to increase the readiness of nutritional knowledge and to improve the responsiveness of the population.
However, in digital channels a variety of unreferenced and no-scientific based news could be present leading to misinformation. To deal with this and to ameliorate knowledge about Mediterranean Diet, a web-based nutritional educational course was developed.
The project was based on the development of a course divided into 10 modules with topics related to the Mediterranean diet based on Italian guidelines for a healthy nutrition (CREA) and principles of the Mediterranean diet. The course includes a specific focus on legumes to increase population's awareness about this plant-based food consumption and important role both for health and environment.
Each module presents both a theoretical part and a training part to improve decision-making, engagement, enhancement of problem-solving ability and research skills, stimulate curiosity and critical thinking skills. Related to this, a forum to guarantee the peer-to-peer discussion, guided by tutors, is also present.
Course contents were elaborated using the guidelines for highly readable material for students with learning specific disabilities, aiming to make the course accessible to all users.
The course was tested in 78 Unicam “Human Nutrition Biology” students, as they will be responsible for the promotion of healthy diet. Adherence to Mediterranean diet was investigated before and after the intervention to evaluate its effectiveness.
It was observed an increased in percentage of participants with a good adherence to Mediterranean diet. The percentage of participants not consuming pulses was significantly reduced from 75.6% to 55.1%.
The course was appreciated by the majority of participants and, almost all of them declared that practical tasks were useful to improve their knowledge.
Taking into account the feedbacks collected about the applicability and the effectiveness, the platform is constantly updated to be used in new projects and reach an ever-widening audience.

COD. P068

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10722

Association between BMI, ultra-processed foods consumption and adherence to the Mediterranean Diet in a group of overweight and obese patients

E. Fiorillo[1], C. Gautiero [1], G. Palatucci[1], M.S. Lonardo [1], L. Mauriello[1], N. Cacciapuoti[1], E. Fey[1], M. Di Lorenzo [1], B. Guida[1]
[1]*Department of Clinical Medicine and Surgery, Physiology Nutrition Unit, Federico II University of Naples,*

The term "ultra-processed foods" (UPFs) refers to industrial preparations with substances not routinely used in cooking. The increased consumption of UPFs has coincided with an increased prevalence of noncommunicable diseases in many countries, suggesting a possible association with health status. Finally, UPFs interfere with satiety signals, and their satisfying nature can cause true addiction, resulting in increased of overall food intake.
The purpose of this study was to assess UPFs consumption in relation to overweight and obesity and to evaluate the possible relationship between Mediterranean Diet (MD) adherence and UPFs consumption. 31 female subjects (Body Mass Index, BMI ≥ 25Kg/m2) attending at Outpatients Clinic of the I.P. “Diet Therapy in transplantation, renal failure and chronic pathology”, University of Naples Federico II, were enrolled. Anthropometric measurements were evaluated at baseline as well as the NFFQ (Nova Food Frequency Questionnaire), for assessment of UPFs consumption and the PREDIMED for assessment of adherence to the MD, were administered.
Then, the population was stratified by BMI classes (Group 1, n° 9 BMI 25-29,9Kg/m2; Group 2, n°10 BMI 30-39,9 Kg/m2; Group 3, n°12 BMI > 40 Kg/m2). The consumption of UPFs was: 198.2 ± 86.1 g/day (15 ± 5.4% of daily intake); 355.9 ± 78.7 g/day (25 ± 5.4% of daily intake); 506.6 ± 174.3 g/day (27 ± 8.2% of daily intake) (Group 1, Group2, Group 3, respectively; p<0.002). In addition, as BMI and UPFs consumption increased, a decrease in MD adherence (PREDIMED score) was observed: 7,7±1,2; 6,1±0,3; 4,6±0,7. (Group 1, Group 2, Group 3, respectively (p< 0,001). Our results suggest an association between higher BMI, higher daily consumption of UPFs and lower adherence to MD. Further studies are needed to clarify the association between consumption of UPFs and health status.

COD. P069

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10724

Role of food security in adopting a Mediterranean diet in five Mediterranean countries: the DELICIOUS project

I. Guerrera[1], J. Godos[1], S. Laudani[1], A. Mata[2], M.I. Pardo[2], P. Busó[2], G. Grosso[1]

[1]*Department of Biomedical and Biotechnological Sciences, University of Catania, Catania, Italy*

[2]*AIJU, Technological Institute for children's products & leisure, Alicante, Spain*

Food security is a universal need assuring access to healthy diet in both developing and developed countries. The aim of this study was to investigate the association between factors related to food security and adherence to the Mediterranean diet in 5 Mediterranean countries (Italy, Spain, Portugal, Egypt, and Lebanon) participating to the EU funded project DELICIOUS (UnDErstanding consumer food choices & promotion of healthy and sustainable Mediterranean diet and LIfestyle in Children and adolescents through behavIOUral change actionS). Data were retrieved from a survey involving 2011 parents of children and adolescents aged 6-17 years old. The KIDMED score was used to assess the level of adherence to the Mediterranean diet. Information regarding easiness to retrieve foods characteristic of the Mediterranean diet, working status, economic allowance, and place of living were collected. The association with adherence to the Mediterranean diet was investigated by performing logistic regressions. The analyses revealed that individuals living in rural areas and reporting difficulty retrieving all food items explored were less likely to have higher adherence to the Mediterranean diet. Moreover, higher adherence was also associated with household monthly income higher than €3,500. No associations with family status nor working situation were found. There were no evident differences across countries, although there was nearly an inverse trend toward lack of association between economic allowance and higher adherence to the Mediterranean diet in Italy. In conclusion, the progressive abandonment of traditional dietary patterns, such as the Mediterranean diet, may not just depend on a cultural shift toward unhealthier industrial alternatives, but also on family budget and easiness to retrieve food stuff.

COD. P070

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10725

Mediterranean diet and chronotype in Southern Italian adults

N. Paladino[1], S. Castellano[2], F. Galvano[1], G. Grosso[1], J. Godos[1]

[1]*Department of Biomedical and Biotechnological Sciences, University of Catania, Catania, Italy*

[2]*Department of Educational Sciences, University of Catania, Catania, Italy*

There is a growing body of evidence suggesting a link between diet and sleep. While several studies investigated whether higher adherence to the Mediterranean diet may be associated with better sleep quality, the relation with chronotype has been only recently explored. The aim of this study was to better understand the association between adherence to the Mediterranean diet and chronotype. For this purpose, an analysis on 1936 adults living in Southern Italy was performed to investigate the association between adherence to the Mediterranean diet (assessed through a 110-item food frequency questionnaire and a literature-based adherence score) and chronotype (assessed through the short form of the morningness-eveningness questionnaire). A total of 1149 individuals (59.3%) resulted in having morning chronotype, 614 (31.7%) had evening chronotype, and 173 (8.9%) had intermediate chronotype. A multivariate logistic regression analysis was conducted to calculate odds ratios (OR) and 95% confidence intervals (CIs) describing the association between adherence to the Mediterranean diet and chronotypes. Individuals reporting having intermediate and evening chronotypes were less likely to have higher adherence to the Mediterranean diet compared to morning chronotype (OR = 0.28, 95% CI: 0.18, 0.42 and OR = 0.08, 95% CI: 0.03, 0.27, respectively). In conclusion, current evidence suggests that lower adherence to the Mediterranean diet could be associated with evening chronotype.

COD. P071

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10726

The Role of Phase Angle in the Assessment of Clinical Outcomes in Cancer Patients treated with chemotherapy

V. Membrino[1], A. Di Paolo[1], S. Alia[1], C. Copparoni[2], E. Pelati[3], S. Crocetti[2], A.A. Mobili[3], M. Pistelli[2], M. Taus[3], R. Berardi[2], R. Giampieri[2], A. Vignini[1]

[1]*Biochemistry, biology, and physics section, Odontostomatologic and Specialized Clinical Sciences, Università Politecnica delle Marche, Ancona, Italy*

[2]*Oncology clinic, Clinical and Molecular Sciences Department, Università Politecnica delle Marche – AOU Ospedali Riuniti di Ancona, Ancona, Italy*

[3]*Dietetics and Clinical Nutrition, AOU Ospedali Riuniti di Ancona, Ancona, Italy*

Incidence and mortality of cancer are globally increasing, and it's known that cancer patients are particularly at high risk for malnutrition. That is due both to the disease itself and to the side effects of therapies which can in turn negatively affect either the response to therapy and/or the QoL of patients.

The present study evaluated whether body composition differences, assessed by bio-electrical impedance analysis (BIA), in patients with cancer, who received chemotherapy, might be associated with modifications in different clinical factors. In particular, our attention was focused on phase angle (PhA) and the analysis were performed before the first cycle (t0) and after 1-2 months (t1) of chemotherapy. In this monocentric, prospective, observational study we enrolled 30 patients affected by solid tumors (breast or gastrointestinal cancers) and treated with chemotherapy. We evaluated whether a series of clinical factors (age, sex, type of chemotherapy regimen, metastatic vs not-metastatic disease involvement and different tumor type) might be associated with changes in PhA. The enrolled patients were treated with chemotherapy in neoadjuvant, adjuvant or first line metastastic setting. In the whole cohort of patients, a reduction of PhA between t0 and t1 was observed. Our data are in accordance with those present in the literature, suggesting that PhA decrease is frequent as the underlying neoplastic disease worsens. Stratifying by clinical variables, female patients, younger patients, predominantly with not-metastatic involvement, affected by breast cancer and who received taxane-based chemotherapy were those at statistically significant difference in PhA between t0 and t1 was observed. BIA is an affordable, portable, easy-to-use, effective method for detecting PhA that seems to be a good indicator of the individuals' state of deterioration and malnutrition.

Early recognition and intervention are critical to preserve nutrition status in patients with cancer and proceeding on the evaluation of this indicator could be beneficial. Further studies are recommended in this specific subset of patients to increase the reproducibility and the usefulness of this tool in early recognition of malnourishment in cancer patients.

COD. P072

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10727

Physical Activity, Sun Exposure, Vitamin D Intake and Perceived Stress in Italian Adults

F. Furnari[1], G. Grosso[1], S. Castellano[2], J. Godos[1]

[1]*Department of Biomedical and Biotechnological Sciences, University of Catania, Catania, Italy*

[2]*Department of Educational Sciences, University of Catania, Catania, Italy*

The last decades of global development due to rapid urbanization, pressuring entire populations to changes in lifestyle and dietary habits, led to an increase in the occurance of mental disorders, including stress. This study investigated how lifestyle and dietary factors, such as physical activity, sun exposure, and vitamin D intake are linked to perceived stress in a Mediterranean-based population. Physical activity level was assessed using the International Physical Activity Questionnaires (IPAQ), sun exposure was measured using the Sunlight Exposure Measurement Questionnaire (SEM-Q), and validated food frequency questionnaires (FFQs) were used to estimate dietary intakes. Perceived stress of the study participants was assessed using the Perceived Stress Scale (PSS). Multivariate logistic regression models were used to test for potential associations. In the most adjusted model, an inverse association between physical activity level, sunlight exposure, vitamin D intake and high perceived stress was found (OR = 0.72, 95% CI: 0.51, 1.00, OR = 0.72, 95% CI: 0.52, 0.99, OR = 0.69, 95% CI: 0.53, 0.89 respectively). However, when stratifying the population by level of physical activity, the retrieved associations with sunlight exposure and dietary vitamin D intake were significant only among those individuals reporting being moderately to highly physically active (OR = 0.16, 95% CI: 0.08, 0.33 and OR = 0.46, 95% CI: 0.28, 0.76, respectively), while results on low physically active participants were null. In conclusion, this study demonstrated that higher dietary intake of vitamin D and sunlight exposure are associated with a lower likelihood of having high perceived stress among physically active individuals.

COD. P073

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10728

The Mediterranean Diet Game

S. Sensi[1], T. Mastantuono[1], O. Di Geronimo[1], A. Visone[1], L. Pannone[1], M. Esposito[1], G. Parente [1], P. Pecoraro[1]
[1]*1Food and Nutrition Hygiene Service, Department of Prevention, Local Health Authority Napoli 3 Sud.*

Background.
During the academic year 2022/2023, the Food and Nutrition Hygiene Service Local Health Authority Napoli 3 Sud, as part of the PRP Campania Region 2020-2025-Health-Promoting Schools, implemented an action to promote the Mediterranean Diet.
Aim.
The aim is to promote the Mediterranean Diet through a game-based experiential learning approach, that follows a complete path with the goal of not perceiving food education as an obligation or a school subject, but rather as a lifestyle to be lived with the family on a daily basis.
Methods.
"The Mediterranean Diet Game" is dedicated to third and fourth-grade students. The game is realised as a table game, based on a path of 8 themed squares to be explored throughout the school year. The game is made of a magnetic board to be hanged on the wall, with the path drawn on it, a magnetic pawn, 8 cards, and materials for activities. Each month, a child moves the pawn on the board starting from the starting line. The teacher reads the content of the card to the class and carries out practical/experiential and game/motor activities with the students. During the academic year, training meetings are planned with the Food and Nutrition Hygiene Service Local Health Authority Napoli 3 Sud, aimed at teachers and families. At the end of the academic year, a final event will be organised. The teachers attended a 3-hour ad hoc training course to be able to carry out the game activities. The Local Health Authority Napoli 3 Sud signed a protocol of communication with local food producers for the use of Mediterranean Diet foods. Two questionnaires were administered: a game pre-evaluation and a pre-KidMed questionnaire.
Results.
38 training courses were held, attended by 728 teachers, 69 schools, 608 classes, 10.469 students, and 270 class representative parents were involved. A pre-evaluation questionnaire of the game was administered to teachers and parents attending the training courses, and 70.4% considered the game a very innovative action, while 35% reported having an excellent knowledge of the Mediterranean Diet, 704 parents responded to the KidMed questionnaire.
Conclusions.
The game can be an excellent tool for food education, involving the family in order to increase adherence to the Mediterranean Diet.

COD. P074

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10729

Nut consumption and cognitive health in mid-older Italian adults

G.A. Santagati[1], L. Basile[1], N. Paladino[1], F. Galvano[1], S. Castellano[2], G. Grosso[1], J. Godos[1]

[1]*Department of Biomedical and Biotechnological Sciences, University of Catania, Catania, Italy*

[2]*Department of Educational Sciences, University of Catania, Catania, Italy*

Following the rise in life expectancy, the incidence of chronic age-related conditions such as cognitive decline, Alzheimer's disease and dementia is rapidly increasing. Diet may represent a key modifiable factor that could exert neuroprotective actions. There is consistent evidence showing that adherence to the Mediterranean diet could be associated with potential preventive and ameliorative effects on the brain. Nuts, typically included in the Mediterranean diet, represent a rich source of monounsaturated and polyunsaturated fatty acids, vitamins E and K, minerals and polyphenols, which may play some role in cognitive status. The aim of the study was to investigate the association between nut consumption and cognitive status in Italian mid-old adults. A total of 883 participants aged over 50 years were included in the study sample. Nut intake was evaluated by the administration of food frequency questionnaires. The Short Portable Mental Status Questionnaire (SPMSQ) was used to assess the cognitive status of the participants. Multivariate logistic regression analyses were used to test the associations. After adjusting for potential confounding factors, a significant inverse association between total nut consumption and cognitive impairment was found [odds ratio (OR) = 0.40, 95% confidence interval (CI): 0.20-0.80] and became stronger after adjusting for adherence to the Mediterranean diet (OR = 0.36, 95% CI: 0.13-0.77). However, among individual nut types, no significant association was detected. In conclusion, total nut consumption appeared associated with better cognitive status; considering the individual types of nuts, no significant relationship was reported, thus further studies would be necessary to explore the association.

COD. P075

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10730

Nutritional impact of replacing cow's milk with plant-based drinks in a dietary plan in line with the Italian Dietary Guidelines

P. Biscotti[1], M. Tucci[1], C. Del Bo'[1], M. Porrini[1], D. Angelino[2], N. Pellegrini[3], P. Riso[1], D. Martini[1]

[1]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Human Nutrition, Università degli Studi di Milano, Milano, Italy*

[2]*Department of Bioscience and Technology for Food, Agriculture and Environment, University of Teramo, Teramo, Italy*

[3]*Department of Agricultural, Food, Environmental, and Animal Sciences, University of Udine, Udine, Italy*

Over the last few years, cow's milk (CM) consumption is decreasing while consumption of plant-based drinks (PBD) is increasing in Western countries. Among the possible reasons behind these changes, the belief that CM consumption is harmful to human health and animal welfare, as well environmentally unsustainable. PBD are often proposed to facilitate the transition towards sustainable healthy diets. However, their nutritional profile is different from CM, mainly in terms of calcium content, and there is currently no evidence about the impact of substituting CM consumption with PBD on nutrient intake and health-related outcomes.

The present study aims to evaluate the impact of CM substitution with PBD within a dietary plan in line with the Italian Dietary Guidelines (IDG). To do this, we used the average nutritional value declared on the food labels of 309 PBD retrieved on the Italian market of different categories, grouped into calcium-fortified (Ca) and not Ca-fortified (nCa) products.

In terms of macronutrients, the substitution of CM with PBD in the IDG dietary pattern led mainly to a significantly lower intake of protein, saturated fat (SFA), cholesterol, and higher intake of fiber. Conversely, the amount of total fat, total carbohydrates and sugars was strongly dependent on the type of PBD.

Regarding micronutrients, the replacement of CM with all PBD within the IDG dietary pattern caused mainly a reduced intake of Vit. B1, Vit. B2 and Vit. B12. All nCa-PBD dietary patterns provided a lower amount of Ca while, after replacement with Ca-PBD, the differences with CM-IDG plan were dependent on the type of PBD since their Ca content ranged from 80 to 160 mg/100 mL.

From the preliminary results of our study, the substitution of CM with PBD within the IDG plan could promote a reduced intake of SFA and cholesterol; however, unaware substitution could lead to unintended nutritional consequences due to a reduced intake of micronutrients. Therefore, the optimization of both dietary plans including PBD substituting CM and plans including CM might be useful to maximize diet quality while minimizing the environmental impact of these patterns. At the same time, informing people about the nutritional risks deriving from total substitution of CM seems to be advisable.

COD. P076

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10732

Global review of information on serving size and frequency of consumption in food-based dietary guidelines

B. Pellegrini[1], C. Del Bo'[1], M. Porrini[1], P. Riso[1], D. Martini[1]

[1]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Human Nutrition, Università degli Studi di Milano, Milano, Italy*

One of the aims of nutrition is to allow us to reach, without exceeding, energy and nutrients intake requirements. To achieve this goal, it is necessary to combine foods belonging to different food groups in adequate portions and frequencies of consumption. Food based dietary guidelines (FBDGs) may be mighty tools to help people increasing their knowledge about the concept of portion size and frequency of consumption and, as also assessed by FAO and WHO, may empower consumers toward healthier and sustainable choices. The present study aims to verify which type of information related to portion size and frequency of consumption are reported in the worldwide FBDGs.To this aim, FBDGs were searched and downloaded from the FAO database in December 2022 and an update was performed in February 2023[1]. Google research was made to confirm that each FBDG was the most recent version. FBDGs were included if available in English or Italian languages, while those available in other languages were excluded.A total of 97 FBGDs were found: 36 documents did not respect the inclusion criteria, thus 61 were included in the final analysis. Information on portion size and frequency of consumption was provided in 29 FBDGs, while 14 documents reported incomplete indications and 18 documents did not provide any. Among the documents reporting information a high variability between indications was observed, mainly in the mode used to express quantitative amounts for different foods (e.g., weekly or daily amount) or because in some cases amounts are expressed for specific food items (e.g., milk, yogurt) and in others for specific food groups (e.g., dairy).In conclusion this review, although preliminary, suggests that a large part of current FBDGs does not provide indications on portion size and frequency of consumption. These results may provide interesting and useful insights for future revision of many FBDGs to make them a useful tool for empowering consumers toward more healthy choices.
[1] FAO. Food-Based Dietary Guidelines. Available online: https://www.fao.org/nutrition/education/food-based-dietary-guidelines

COD. P077

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10733

Potential role of quercetin metabolites as caloric restriction mimetics in mature 3T3-L1 adipocytes

M. Rendine[1], S. Venturi[1], M. Marino[1], C. Gardana[1], P. Riso[1], M. Porrini[1], C. Del Bo'[1]

[1]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Human Nutrition, Università degli Studi di Milano, Milano, Italy*

(Poly)phenols have been suggested to play a potential role as caloric restriction mimetics (CRMs) agents acting on different metabolic targets also related to overweight and obesity.
The purpose of this study was to evaluate the anti-lipogenic activity of quercetin metabolites (QMs) tested as single compounds or as mixture, at physiological and supraphysiological concentrations in 3T3-L1 adipocytes as in vitro model of obesity.
To this aim, mature 3T3-L1 adipocytes were exposed to low glucose cell culture media (DMEM; 1 g/L, as model of caloric restriction (CR)) or high glucose DMEM (4.5 g/L, as control) with and without QMs (quercetin-3-glucuronide (Q3G) and isorhamnetin). QMs were administered at different concentrations (Q3G: 0.3 and 0.6 µmol/L, and isorhamnetin: 0.2 and 0.4 µmol/L) for 48h. Cell lipid accumulation was determined by the semi-quantitative Oil red O (ORO) staining assay. Intracellular triglycerides (TGs) and glycerol were quantified by fluorometric and colorimetric kits, respectively. Additionally, cell glucose uptake was evaluated by HPLC.
Adipocytes exposed to CR showed a significant reduction ($p<0.01$) in lipid accumulation (-10.6%, 95% CI [-2.6, -18.6]) compared to the control. The administration of Q3G and isorhamnetin under high glucose condition significantly reduced ($p<0.05$) lipid accumulation (Q3G: -11.4%, 95% CI [-3.4, -19.4] and -10.8%, 95% CI [-2.8, -18.8] at 0.3 and 0.6 µmol/L, respectively; isorhamnetin: -11.8%, 95% CI [-3.8, -19.8] and -10.4%, 95% CI [-2.4, -18.4] at 0.2 and 0.4 µmol/L, respectively) compared to the control. No significant differences were observed between QMs tested under CR respect to CR alone. Glycerol concentration, as marker of lipolytic activity, was not significantly modulated by QMs in both experimental conditions.
In conclusion, preliminary data seem to indicate that QMs may reduce lipid accumulation under high glucose condition in mature 3T3-L1 adipocytes, but no more powerful results were observed under CR. QMs do not affect glycerol release, suggesting the need for a deeper evaluation of glucose uptake and intracellular TGs to clarify their potential anti-lipogenic role.

COD. P078

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10735

Prediction of early and long-term hospital readmission in patients hospitalised due to severe obesity: a retrospective cohort study

V. Ponzo[1], I. Comazzi[1], F. Bioletto[2], A. Brunani[3], G. Ciccone[4], A. Evangelista [4], F. Rahimi[1], S. Bo[1]

[1]*Dietetic and Clinical Nutrition, Department of Medical Sciences, University of Turin, Turin, Italy*

[2]*Endocrinology, Diabetes and Metabolism, Department of Medical Sciences, University of Turin, Turin, Italy*

[3]*Rehabilitation Medicine Unit, IRCCS Istituto Auxologico Italiano Piancavallo, Oggebbio (Verbania), Italy*

[4]*Unit of Clinical Epidemiology, CPO, "Città della Salute e della Scienza" Hospital, Turin, Italy*

Background: Patients with obesity are at increased risk of hospitalization compared to the general population, with high hospitalization-related healthcare costs. Our aim was evaluating the predictors of hospital readmission in a cohort of patients hospitalised for the management of severe obesity.

Methods: All the patients residing in Piedmont (North-Western Italy) and admitted for severe obesity between 1st January 2009 and 31st December 2018 to the Istituto Auxologico Italiano (IAI) in Piancavallo were included. Anthropometric and health status data were collected from the medical records of the index admission at the IAI. To determine readmissions, hospital discharge records (HDRs) from any hospital in Italy, between 2 years before the index admission until the 31st December 2019, were identified from the regional database by a deterministic record-linkage procedure through the unique anonymous identifier code.

Results: Of the 1136 enrolled patients, 158 patients (13.9%) underwent bariatric and death was registered in 71 (6.3%) cases. During the observation period, a total of 2066 hospitalization occurred with a rate of 0.34 hospitalizations per person-year; 194 (9.4%) and 444 (21.5%) hospitalizations occurred within 30 and 90 days from the previous hospital discharge respectively. Predictors of readmission within 30 days were age (HR=1.02, 95%CI 1.00-1.05, p=0.024), serum creatinine (HR=1.34, 1.12-1.60, p=0.001), and admissions in the previous 2-years (HR=1.23, 1.14-1.30, p<0.001). The same factors were identified as predictors of readmission occurring within 90-days with the addition of diabetes mellitus (HR=1.24, 1.00-1.55, p=0.050).

Conclusion: BMI was not a predictor of early readmission after a hospital discharge for obesity treatment, while serum creatinine, age, and previous hospital admissions were. The identification of higher-risk patients would allow healthcare professionals to better manage the follow-up and treatment of these individuals.

COD. P079

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10736

A food education and health promotion program in primary and secondary schools of Pavia

S. Fiorini[1,2], M. Guglielmetti[1,2], B. Da Prada[1], C. Roncallo[2], A. Tagliabue[1], C. Ferraris[1,2]

[1]*Human Nutrition and Eating Disorder Research Center, Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy*

[2]*Laboratory of Food Education and Sport Nutrition, Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy*

Background: Healthy nutrition is essential for optimal growth and development and provides protection against chronic diseases. Overweight trend among school-age individuals in Italy has reached alarming values, and surveys on eating habits show a significant prevalence of inadequate eating behavior (i.e. over-consumption of energy-dense, nutrient-poor foods and drinks) and sedentary lifestyle. Aim: To create an educational program suitable for children and adolescents, in order to promote a healthy lifestyle. Methods: Nutrition, physical activity and sustainability concepts were explained through appositely created presentations, games, cartoons and videos, differentiated according to the school grade. The intervention consisted of 2-hours in presence or online sessions. In primary school quizzes and games on nutritional topics (i.e. choose the correct season for each fruit/vegetable) were used. Nutrition-related fake news was discussed with the students of secondary schools using true/false questions and quizzes. The Food and Sustainable Pyramids were compared, stimulating the discussion on the similarities and contrasts. Adherence to the Mediterranean Diet (MD) was investigated through the KIDMED questionnaire. Students underwent anthropometric evaluation (weight, height, waist circumferences). Results: 13 classes were enrolled but 3 could not participate due to technical issues. Out of the 213 students remaining, 186 took part in the project (87,3% of retention rate). The two-way approach permitted high student engagement and the elaboration of specific presentations allowed the use of adequate levels of communication. The KIDMED questionnaires showed medium adherence to the MD, except for one class (high adherence). The consumption of fruit and vegetables was inadequate in the majority of the sample (58% and 61% respectively). Anthropometric evaluation showed a prevalence of 25% for overweight and 4% for obesity in the studied sample. Conclusion: Personalized educational programs (with specific communication strategies) focused on adequate nutrition, importance of physical activity and sustainability represents a fundamental strategy to improve the lifestyle of primary and secondary schools.

COD. P080

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10738

CASE STUDY: THE ROLE OF DIETOTHERAPY IN A PATIENT WITH HAEMOCHROMATOSIS

G. Chock[1], G. Nasti[1], F. Giacon[1], E.C. Liguori[1], M. Lombardi[1], D. Palmieri[1], A. Riccio[1], B. Guida[1]

[1]*Department of Clinical Medicine and Surgery, Physiology Nutrition Unit, University of Naples "Federico II", Naples, Italy.*

Background: Haemochromatosis is a hereditary clinical condition characterized by progressive iron overload in the body causing organ damage, particularly in the liver. Treatment requires removal of excessive iron from the body, usually by periodic bloodlettings. To date, it is suggested to start phlebotomy for Ferritin values > 200 µg/L in women and > 300 µg/L in men, to prevent the disease worsening.
Aim: To evaluate the effect of a low iron diet, high in tea and caffeine to reduce the frequency of phlebotomy.
Methods: The case examined is a 49-years-old man with haemochromatosis diagnosis (baseline levels of Ferritin: 578 ng/ml and Transferrin Saturation: 42%), dyslipidemia and hypertension under drug treatment. The patient, attending the Outpatient Clinics of Clinical Medicine and Surgery Department after two previous phlebotomies (15 days apart), was treated with a weight maintenance, hyposodic and low iron (4,29 mg/die compared with 10 mg/die according to LARN for adult males) mediterranean diet. Vitamin C food intake was reduced while the iron chelators one was increased. Blood biochemistry parameters were collected every 3 months. The patient underwent monthly follow-ups for a period of 12 months.
Results: At the end of follow-up, a decrease of the serum level of Ferritin (286 ng/ml vs 578 ng/ml baseline) and the Transferrin Saturation (11,46 % vs 42% baseline) was observed. Furthermore, the patient performed 5 bloodlettings in the first 7 months and stopped undergoing phlebotomies in the last 5 months because they were no longer recommended based on these values achieved.
Conclusions: This case report suggests that a low iron, low Vitamin C and high iron chelators diet was able to reduce serum level of Ferritin and Transferrin Saturation as markers of haemochromatosis. Phlebotomies is, to date, the elective treatment and diet therapy could be a valid support to phlebotomy therapy, reducing its frequency over a long period of time. Anymore further studies in a wider population are needed to confirm these results.
Bibliography:Barton JC, McDonnell SM, Adams PC, et al. Management of hemochromatosis. Ann Intern Med 1998 ;129 :932-939.

COD. P081

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10739

SCHOOL CANTEEN IN THE AREA OF THE LOCAL HEALTH AUTHORITY “NAPOLI 3 SUD”: A CUSTOMER SATISFACTION SURVEY

T. Mastantuono[1], S. Sensi[1], L. Pannone[1], A. Antignani[1], F. Paturzo[1], L. Battiloro[1], P. Pecoraro[1]

[1]*Food and Nutrition Hygiene Service, Department of Prevention, Local Health Authority “Napoli 3 sud”*

Background and Aim: The school canteen plays an important key role in promoting a healthy diet. To satisfy nutritional needs of school population, school menus are elaborated by Food and Nutrition Hygiene Service according to the LARN (Reference Intake of nutrients and energy for Italian Population) and Ministerial and Regional Guidelines. The present study was aimed to evaluate the satisfaction about school canteen menus from pupils attending the kindergarten, belonging to the Local Health Authority “Napoli 3 Sud” area.
Methods: 120 public school kindergarten, belonging to the Local Health Authority “Napoli 3 Sud” area, were enrolled. A customer satisfaction survey was carried out using a questionnaire with 19 items to evaluate teacher perception about school canteen menus satisfaction from pupils. The questionnaire was developed using Google Moduli platform by Food and Nutrition Hygiene Service, Local Health Authority “Napoli 3 sud”. It consisted of two parts: 3 questions to characterize the sample and 16 questions to assess the student satisfaction. A five-point Likert scale was used to measure the food consumption, the food waste, the satisfaction and overall rating of school canteen service.
Results: 81 schools participated and 708 teachers filled the questionnaire. Data showed that pupils preferred the first course (e.g. pasta with tomato sauce, legumes or vegetables). While, the favorite second course was red and white meat. Conversely, pupils did not favor fish and egg. Similarly, they ate very little the side dish of vegetables. It very interesting to note that single course, composed of pasta with legume, was well accepted from students. Moreover, they often ate fruit and bread, offered during lunchtime. Generally, according to the teachers the food waste was average and the school canteen service was satisfying.
Conclusions: This analysis allowed us to identify weakness and strengths of school canteen to implement effective strategies of health promotion.

COD. P082

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10741

Tackling Youth Obesity: preliminary results of the Med4Youth Study in Italy

J. Rebelo[1,2], E. Bertolotti[1], P. Degli Innocenti[1], M. Petraroli[3], E. Street[3], S. Esposito[3], P. Mena[1], D. Del Rio[1], F. Scazzina[1], A. Rosi[1]

[1]*Human Nutrition Unit, Department of Food and Drug, University of Parma, Italy*

[2]*Faculty of Medicine, University of Porto, Portugal*

[3]*Pediatric Clinic, Department of Medicine and Surgery, University Hospital, University of Parma, Italy*

Overweight and obesity in children are likely to perpetuate into adulthood, so it is important to tackle this disease from childhood to prevent the risks associated with it in the future. To this end, the Med4Youth study[1] aims to compare the effectiveness of a Mediterranean-based dietary intervention (MD) with a traditional low-fat diet in tackling obesity and associated cardiovascular disease risk factors in children and adolescents (11-17 years) overweight or with obesity from Spain, Portugal, and Italy. The dietary intervention is combined with an educational web-application to increase engagement and knowledge of participants through a "learning-through-playing" approach.

In Italy, 80 volunteers were recruited and randomized in one of the intervention groups, 74 started the intervention (V1) and, so far, 59 finished the first two months of treatment (V2). At V1, the mean body mass index (BMI) of all participants was 30.9 ± 4.1 kg/m² and the mean BMI %ile was 97.2 ± 2.2, and they were similar between dietary groups. Although there were no significant differences between the intervention and control groups for both BMI and BMI %ile at V2, a main effect of time was found for body weight (-0.78 kg, $p = 0.035$) and BMI (-0.57 kg/m², $p < 0.001$) between V1 and V2. An increase in the level of adherence to the MD was also observed, confirmed by the consumption data reported by the volunteers, with an increase in the consumption of fruit, vegetables and legumes, food groups characteristic of this dietary pattern.

Although the study is still ongoing, the preliminary results indicate that the MD did not produce any additional benefits over weight status compared to the control group but it is not less effective than the conventional clinical treatment based on a reduction of fat intake. In conclusion, the MD should be an effective, easier to follow and more sustainable dietary intervention to treat youth obesity in the Mediterranean countries. The results at the end of the study will allow proving, or not, these preliminary conclusions.

[1]MED4Youth: Mediterranean Enriched Diet for tackling Youth Obesity is part of the PRIMA programme supported by the European Union, ref. 2018-SECTION2-14 (https://med4youth.eu/).

COD. P083

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10743

Nutritional status and diet quality in Italian population groups: the NUTRISALUS study

E. Azzini[1], L. Censi [1], R. Canali[1], L.M. Donini[2], L. Muzzioli[2], E. Mocini[2], C. Del Bo'[3], A. Battezzati[3,4], P. Brigidi[5], F. Capozzi[5], F. Fanelli[5], A. Tagliabue[6], C. Ferraris[6], S. Fiorini[6], M. Bonaccio[7], L. Iacoviello[7,8], F. Lauria [9], P. Russo [9], M. Dello Russo[9], A. Formisano [9], C. Vetrani [10], A.M. Colao [11], A. Polito[1]

[1]*Council for Agricultural Research and Economics – Research Centre for Food and Nutrition Rome - Italy*
[2]*Sapienza Università di Roma Dipartimento di Medicina Sperimentale, Rome - Italy*
[3]*ICANS-DIS, DeFENS, Università degli Studi di Milano, Milano - Italy*
[4]*Dep of Endocrine and Metabolic Diseases, Istituto Auxologico Italiano, IRCCS, Milano, Italy*
[5]*Alma Mater Studiorum Università di Bologna, Bologna – Italy*
[6]*Dept of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy*
[7]*IRCCS Neuromed, Dipartimento di Epidemiologia e Prevenzione Pozzilli*
[8]*Università dell'Insubria Dipartimento di Medicina e Chirurgia, Varese*
[9]*National Research Council, Institute of Food Sciences, Avellino, Italy*
[10]*Dipartimento di Scienze Umanistiche, Università Telematica Pegaso, Italy*
[11]*Dipartimento di Medicina Clinica e Chirurgia, Università degli Studi di Napoli Federico II, Italy*

The last three decades have seen a dramatic increase in the rate of overweight and obesity among the worldwide population. This is indicative of a worsening trend of poor diets and low physical activity levels with a negative impact on life expectancy. Within the ONFOODS Project, the goal of Spoke 5 "Lifelong Nutrition" is to promote models for healthy nutritional schemes, with a life course approach together with sustainability and security. In this context, the NUTRISALUS study aims to map nutritional status in different Italian groups and define trends of current dietary patterns and nutrient profiles, including factors affecting healthy lifestyle behaviours and psychosocial correlates. Moreover, specific educational and interventional strategies will be identified. The operational plan includes: a) Definition of protocols and standardised tools to evaluate nutritional status, biomarkers, body composition, eating behaviour, physical activity and lifestyle; b) Analysis of existing data and databank to identify areas and populations at higher risk of over- and under-nutrition; c) Identification of target populations and stakeholders; d) Analysis of national data on food consumption, eating and lifestyle habits, accessibility, drivers, and barriers towards a healthy and sustainable diet; e) Development of an ONFOODS cohort to study the nutritional status and diet quality by using standardized protocols and tools, including also advanced omics approaches. The study brings a network of complementary expertise to improve the understanding of the balance among nutritional status, food consumption and lifestyle for the population wellbeing across the life course.
Funder: Project funded under the National Recovery and Resilience Plan (NRRP), Mission 4 Component 2 Investment 1.3 - Call for tender No. 341 of 15 March 2022 of Italian Ministry of University and Research funded by the European Union – NextGenerationEU; Award Number: Project code PE00000003, Concession Decree No. 1550 of 11 October 2022adopted by the Italian Ministry of University and Research, CUP C53C22000840001, Project title "ON Foods - Research and innovation network on food and nutrition Sustainability, Safety and Security – Working ON Foods"

COD. P084

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10744

Predictive factors associated with attrition in cognitive behavioral treatment (CBT) in overweight adults: a systematic review

F. Mariotti[1], L. Neri[2,3], M. Guglielmetti[1,2], S. Fiorini[1,2], A. Tagliabue[2], C. Ferraris[1,2]

[1]Lab of Food Education and Sport Nutrition, Dep of Public Health, Experimental and Forensic Medicine, University of Pavia, Pavia, Italy
[2]Dep of Public Health, Experimental and Forensic Medicine, Human Nutrition and Eating Disorder Research Center, University of Pavia, Pavia, Italy,
[3]Universidade de Sao Paulo, Sao Paulo, Brazil

Obesity is a chronic, complex, and multifactorial disease resulting from the interaction of genetic, environmental, and behavioral factors. It is characterized by excessive fat accumulation in adipose tissue, which causes damage to health and a deterioration in the quality of life. Despite dietary treatment leading to an improvement in the quality of life and health, a high attrition rate is a common problem, with serious consequences in weight loss management and frustration. The strategy of combining dietary prescription and recommendations on physical activity with cognitive-behavioral treatment (CBT) has been given greater consideration. This systematic review aims to find out the predictive factors associated with attrition in CBT in overweight adults. The data obtained from the 40 selected articles show an overall dropout rate between 5% and 62%. Common reasons for dropout were objective reasons (i.e. long-term sickness, acute illness, pregnancy), logistics, poor job conditions or difficulties, a low level of organization, dissatisfaction with initial results, lack of motivation, and lack of adherence. Most of the studies included had considered psychological variables showing an important association with the dropout rate: it was correlated with greater expected weight loss, weight and shape concern, and depression. According to the MMAT quality analysis, 10% of articles were classified as five-star quality (highest), none received 1 star (lowest) and the majority were classified as 4 stars (47.5%). At least 50% of the selected articles have a high level of risk of bias. The domain characterized by a higher level of bias was that of randomization because it depends on the type of study design, which in most cases was observational and non-randomized. This result suggests that CBT could be a good approach for obesity treatment, achieving lower rates of dropout compared to other non-behavioral interventions in most cases. More studies should be conducted comparing obesity treatment strategies, as there is heterogeneity in dropout assessment and the population studied. Ultimately, a deeper understanding of the comparative effectiveness of these treatment strategies would be of great value to patients, clinicians, and healthcare policymakers alike.

COD. P085

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10745

Ketosis and migraine: systematic review of literature and meta-analysis

L.d.C.L. Neri[1,2], C. Ferraris[2,3], M. Guglielmetti[2,3], G. Catalano[4,5], L. Pasca[4,5], E. Pezzotti[4], A. Carpani[4], A. Tagliabue[2]

[1]*Faculdade de Medicina, Dep. de Pediatria, Universidade de Sao Paulo, Sao Paulo, Brazil*

[2]*Lab. di Ricerca sulla Terapia Metabolica Chetogenica, Università di Pavia, Pavia, Italy*

[3]*Lab. di Educazione Alimentare e Nutrizione Sportiva, Università di Pavia, Pavia, Italy*

[4]*Fondazione Neurologica IRCCS Casimiro Mondino, Pavia, Italy*

[5]*Dip. di Scienze del Sistema Nervoso e del Comportamento, Pavia, Italy*

Introduction: Headache is one of the most common disorders all around the world. There is strong evidence that some dietary interventions could bring relief on attacks. One of the possible approaches is the ketogenic therapy, which would replace the fuel of the brain from glucose to ketone bodies and the ketosis would ameliorate the number or the intensity of attacks. Aim: This paper proposes to systematically review the scientific literature about the influence of ketosis on cephalalgia based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method. Results: After judicious selection and bias evaluation, 10 articles remained, mainly from Italy. The assessment of BIAS showed 50% of selected articles having a low risk bias in all domains and the main problematic domain was the randomization process. Generally, the population included in the articles was adult overweight female patients, affected by migraine with or without aura. Unfortunately, the assessment of ketosis was inconsistent between articles (ketonuria, ketonemia, or no assessment), so no association could be made between ketosis level and prevention or reduction of migraine attacks. The ketogenic therapies tested in migraine treatment were Very low Calorie Ketogenic Diet (VLCKD, n=4), Modified Atkins Diet (MAD, n=3), Classic Ketogenic Diet (cKDT, n=2), one study used a low-carb diet (LC) approach and another study used exogenous source of betahydroxybutyrate (BHB). Meta-Analysis, even with a high heterogeneity reported, all interventions had an overall significant effect ($Z=9.07$, $p<0.00001$; subgroup differences: $Chi2= 9.19$, $dif=3$, $p=0.03$, $I2: 67.4\%$), no matter the type of endogenous or exogenous induction of ketosis. Conclusion: The initial findings of the present study support some benefit of metabolic ketogenic therapy in migraine and encourage further studies, especially randomized clinical trials with appropriate and standardized methodology. Our review strongly suggest the inclusion of an adequate measurement of ketone levels during ketogenic therapy in order to check adherence to the treatment and improve knowledge on the relationship between ketone bodies and efficacy.

COD. P086

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10748

Consumption of Ultra-processed foods in an Italian population: A pilot study

L. Barnaba[1], E. Azzini[1], D. Ciarapica[1], F. Belotti[1], A.M. Aloisi[2], A. Polito[1]

[1]*CREA, Research Centre for Food and Nutrition, Rome*

[2]*Department Medicine, Surgery and Neuroscience, University of Siena, Siena*

Globalization and changing lifestyles influence traditional food production and consumption patterns, increasingly favoring the demand for processed 'ready-to-eat' products. These products are known as ultra-processed foods (UPFs), and overconsumption is associated with non-communicable diseases.The study aimed to assess the consumption of UPFs in an Italian adult population and the relationship with diet quality, nutritional status, and metabolic risk factors. Food consumption by validated two food recalls and Food Frequency Questionnaire, physical activity by accelerometry, nutritional anthropometry, body composition by impedance, sociodemographic and lifestyle variables by questionnaires were evaluated. UPFs were estimated by NOVA classification, and the intake was divided into consumption quartiles. Parametric and non-parametric statistical analysis were used with a significance level of $P<0.05$. Preliminary data on a subsample of 28 adults (10 males, 45.2±9.2 years, and 18 females, 46.2±11.3 years; mean BMI: 24.4± 3 kg/m2) were reported. Analysis of food consumption showed a total energy intake (TEI) of 1881 kcal/day, with an average EI from UPF of 557 kcal/day (29.6% of TEI), higher in men than in women ($p=0.000$ for TEI and $p=0.03$ for EI from UPFs). The food groups contributing most to UPFs consumption are Beverages (30.8%), while those contributing least are Vegetables and legumes (4%) and Oils, fats and condiments (2%). UPFs consumption was associated with higher energy intake ($r=0.54$, $p=0.004$), carbohydrates ($r=0.76$, $p<0.001$) and simple sugars ($r=0.36$, $p=0.07$). Moreover, in the highest quartile of UPFs, the dietary intake of simple sugars is about 16% of daily energy. No significant differences were found according to the level of education or body mass index, whereas a positive correlation was found with time spent in sedentary activities ($r= 0.62$, $p=0.0000$). High UPF consumption indicates a sedentary lifestyle, tending towards poor eating and living habits, which could contribute to the development of non-communicable diseases. Knowledge is still scarce, and this study should be a starting point for other large-scale studies involving more significant and specific populations.

COD. P087

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10751

READY SAUCES CONSUMED IN ITALY: NUTRITIONAL COMPOSITION AND SALT CONTENT

C. Borgarelli[1,2], S. Campomenosi[1], E. Formisano[1,2], E. Proietti[1], M. Borriello[1,3], N. Pellegrini[4], D. Angelino[5], D. Martini[6], P. Strazzullo[7], L. Pisciotta[1,2]

[1]*Dipartimento di Medicina Interna-Unige*
[2]*Policlinico Ospedale San Martino di Genova*
[3]*IPSEOA Marco Polo di Genova*
[4]*Dipartimento di Scienze Agroalimentari, Ambientali e Animali- Università di Udine*
[5]*Dipartimento di Bioscienze e tecnologie agro-alimentari e ambientali- Università di Teramo*
[6]*Dipartimento di Scienze per gli Alimenti la Nutrizione, l'Ambiente DeFENS-Università degli Studi di Milano*
[7]*Dipartimento di Medicina e Chirurgia- Università Federico II di Napoli*

Background and aim: Over the past years, ready meal consumption has increased. They provide some valuable nutrients, but there is concern about their high salt content. In Italy, the estimated average daily intake of salt is 9.5 g for men and 7.2 g for women, while WHO set an adequate salt intake for adults of 5g/day, defining benchmarks (Na-BM) for some food categories to reduce salt intake. The aim of our study is to analyze nutritional values of ready sauces sold in Italy and their sodium content in relation to the Na-BM.

Materials: 981 sauces were divided into 4 categories: Ready Sauces “RS”, Pesto alla Genovese “PaG”, Pesto Di “PD” and Salsa di Noci “SdN". Sauces were further divided into the following subcategories: branded “B”, private label “PL”, conventional “C”, organic “O”, fresh “F”, shelf-stable “SS”, local “L” and big brand “BB”. Nutritional composition on 100 g of product (energy, fiber, saturated fatty acids “SFA”, sodium/salt) was collected and sodium content was compared to “Na-BM”.

Method: Products belonging to each sauce category (except for PD cause heterogeneity data) were compared with each other according to the following criteria: B vs PL, C vs O, F vs SS and L vs BB.

Results: 82% of RS products are above Na-BM. In this category, O products have lower amount of energy 64 kcal vs 97 kcal $p<0.0001$, SFA 0.4 g vs 0.8 g $p<0.0001$ and salt 1.0 g vs 1.2 g $p<0.0001$ than C ones and higher fiber 1.8 g vs 1.4 g $p<0.009$; L sauces show lower salt 1.1 g vs 1.2 g $p<0.022$ and SFA 0.6 g vs 0. 8g $p<0.048$ than BB ones. In PaG group, 83% of products are above BM. F products of PaG have higher energy 578 kcal vs 527 kcal $p<0.006$ and SFA 7.4 g vs 6.2 g $p<0.0001$ but lower salt 2.3 g vs 3.0 g $p<0.0001$ compared to SS ones. 88% of SdN products are above Na-BM. Of them, L products have less salt 1.2 g vs 1.6 g $p<0.034$ but higher energy 686 kcal vs 533 kcal $p<0.0001$ than BB ones. 49% of PD products are above Na-BM. B and PL for all categories are statistically significant only for salt $p<0.018$.

Conclusion: Most products of RS, PaG, SdN and PD groups need reformulation in respect of Na-BM but also for SFA and in turn calories. Collaborating with food industries to improve nutritional composition of ready food and promoting campaigns for food education become necessary.

COD. P088

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10752

Nutritional evaluation of sport energy products: focus on energy bars and gels present on the Italian market

F. Rossi[1], L. Festa[1], N. Riscazzi[1], M. Dall'Asta[1]

[1]*Università Cattolica del Sacro Cuore, Department of Animal Science, Food and Nutrition, Piacenza, Italy.*

Athletes commonly consume energy products either before or during physical activity. Several energy bars and gels are sold on the Italian market, however a clear picture of the nutritional quality of these products is lacking. The aim of the present work was to evaluate the nutritional composition of the sport energy bars and gels sold in Italy. A total of 40 energy bars and 21 energy gels were considered and the nutritional data reported on the label were collected and evaluated. The mean energy density (kcal/100 g) for bars and gels were 412 and 209, respectively. The energy density of the bars presented a significant positive correlation with fat content and protein, while negative with sugar and starch. This is probably due to the inclusion of oilseeds in the ingredients which substitute other starchy sources (cereals). After categorization into quartiles, based on the sugar/total carbohydrate ratio, the products of the Q1 differed from those of the Q4 for: the portion size (60.0 g vs 31.0 g) and the energy density (138.2 vs 231 kcal/100 g). As expected, energy gels presented almost no proteins (<0,1%), while the average protein content for bars was 8.6 + 5.2 %, with 9 of them presenting a % of protein potentially bearing the nutritional claim “source of protein”. As for protein, fiber is almost absent in gels, while 16 bars contained 3.0 to 5.9 g/100 g. Other 7 bars exceed 6% of fiber, while the remaining 16 products contained less than 1%. Concerning micronutrients, vitamin B1 was the most present among the ones reported (13 out of 39 for bars and 6 out of 20 for gels), followed by vitamin B6 (14 out of 39 for bars and 5 out of 20 for gels), probably due to their role in decarboxylation of pyruvate, α-ketoglutarate and branched chain amino acids (vitamin B1) and in neo-glucogenesis (vitamin B6). Mineral content was found to be less frequently reported (6 out of 39 bars and 1 out of 20 gels), with Mg being the most present, probably for its role in muscle contraction.

COD. P089

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10753

Dietary habits and physical activity in twin pregnancies: first results of the VENERE Project

A. Napoletano[1], M. Dinu[1], S. Lotti[1], I. Giangrandi[1], G. Pagliai[1], M. Tristan Asensi [1], B. Colombini[1], A. Ruotolo[3], L. Nardone[3], I. Paternò [3], I. Renda[3], V. Seravalli[3], M. Di Tommaso[3], F. Sofi[1,2]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy*

[2]*Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*

[3]*Department of Health Sciences, Division of Obstetrics and Gynecology, Careggi University Hospital, Florence, Italy*

Background: Numerous studies have shown that an adequate maternal lifestyle has a significant impact on maternal and neonatal outcomes, but studies on twin pregnancies are very few. The VENERE project is a prospective study which is currently ongoing, conducted at the Careggi University Hospital, Florence from the Clinical Nutrition Unit in collaboration with the Multiple Pregnancy Outpatient Service. The purpose of the study will be to investigate lifestyle, eating habits and diet quality in women with twin pregnancies during the three trimesters of pregnancy and to assess possible relationships with maternal and neonatal outcomes.

Methods: Data at baseline were collected from 50 women aged 18 to 43 years with twin pregnancies, without ongoing complications, who referred to the Multiple Pregnancy Outpatient Service between September and December 2022. Demographic, anthropometric, and dietary habits information was collected. Adherence to the Mediterranean diet (MD) was assessed through the Medi-Lite score, while physical activity level was defined with the International Physical Activity Questionnaire (IPAQ).

Results: The sample had an average pre-pregnancy body mass index of 22.1 ± 3.5 kg/m2. All women reported eating main meals regularly, while 30% of women reported skipping mid-morning snack and 16% skipping mid-afternoon snack. Analyzing the results of the Medi-lite questionnaire, a moderate adherence to MD was observed (mean score 9.8 ± 1.8). In fact, only a minority of women showed optimal consumption (i.e., the choice that gave 2 points for the score) of fruits (20%), vegetables (12%), legumes (12%), fish (6%), and milk and dairy products (22%). As for physical activity, only 22% and 8% were sufficiently and very active, respectively. Correlation analysis between Medi-Lite and IPAQ score revealed a significant positive association, suggesting that women with higher MD adherence were also more physically active (R=0.33, p=0.02).

Conclusion: These preliminary analyses show that women with twin pregnancies recruited so far in the VENERE project had suboptimal consumption of typical Mediterranean food groups and reported insufficient physical activity.

COD. P090

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10754

Formulation and nutritional functionality assessment of pea protein-rich bread intended for the elderly

M. Moretton[1], E. Capuano[2], V. Fogliano[2], N. Pellegrini[1], M. Anese[1]

[1]*Department of Agricultural, Food, Environmental and Animal Sciences, University of Udine, Udine, Italy*

[2]*Food Quality and Design Group, Wageningen University, Wageningen, The Netherlands*

The increase in the elderly population calls for knowledge of age-related changes and nutrition needs in order to prevent and treat malnutrition and diseases, such as sarcopenia. Optimal protein intake preserves muscle mass and strength in the elderly. However, they tend to not introduce recommended proteins. Enriching staple foods can be a strategy to increase the intake of such a nutrient. Bread is an important food in the daily diet of the elderly population, especially in the Mediterranean area. It is generally produced with soft wheat flour, but other ingredients, such as proteins, can be added to increase its nutritional value. Legumes have been gaining interest in the development of functional foods because they are cheap, sustainable and quite well-balanced in terms of amino acid profile even if their proteins are not highly digestible. High pressure homogenization (HPH) has been recently proposed as an effective tool to increase the digestibility of plant proteins [1].

To this purpose, a functional bread tailored to elderly consumers was developed by substituting 5% of wheat flour with untreated or HPH-treated pea protein concentrate, to bear the claim of “source of protein”. Nutritional quality was assessed by mimicking elderly in vitro gastrointestinal (GI) [2] and gut microbiota conditions and results were compared with those obtained by applying protocols simulating adult conditions.

Bread reformulation with pea proteins affected physical and chemical properties and produced an increase in hardness, which is one of the key features for the acceptability of bread by the elderly. The highest value was observed for untreated-pea protein bread, followed by HPH-pea protein treated bread and soft wheat bread. Protein digestibility and fermentability were not affected by reformulation, but by physiological digestive conditions, with lower digestibility under elderly conditions compared to adult ones.

The obtained results may contribute to a better understanding of food digestibility under different GI conditions and its dependence on physiological and formulation factors, and ultimately would help to design age-tailored foods.

[1] Melchior S et al (2022) Food Bioprod. Process. 131: 77–85.

[2] Melchior S et al (2023) Food Res. Int. 163, 112147.

COD. P091

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10756

Foods consumption and blood glucose control in adults with type 1 Diabetes on hybrid artificial pancreas

I. Calabrese[1], L. Bozzetto[2], G. Costabile[2], G. Scidà [2], A. Corrado[2], A.A. Rivellese[2], G. Annuzzi[2]

[1]*Healthcare Direction, "A. Cardarelli" Hospital, 80131 Naples, Italy*

[2]*Dep. of Clinical Medicine and Surgery, "Federico II" University, 80131 Naples, Italy*

Background and Aim. Blood glucose control (BGC) is challenging in people with type 1 diabetes (T1D) due to the absence of insulin secretion. Hybrid artificial pancreas (HAP) systems represent the most advanced system for insulin delivery in these patients, and it has been shown to improve daily BGC and reduce hypoglycemic events. However, HAP systems do not always optimize postprandial glycemic response. In fact, the type of foods consumed could affect their performance. Therefore, we evaluated, in real life, the relationship between the intake of different foods and BGC in subjects with T1D using HAP.

Methods. Twenty-three food groups were assessed by 7-day food records (n=101) completed by patients with T1D. Daily and postprandial BGC was evaluated through continuous glucose monitoring devices and the population was divided into two groups based on daily or postprandial time-in-range (TIR, ≥70% or <70%). According to the most recent guidelines, a TIR ≥70% (blood glucose concentrations ranging 70-180 mg/dl) is used to indicate a good BGC. Differences between groups were evaluated by independent-samples t-test. Foods whose consumption differed significantly between groups were entered into a multiple regression model for the identification of main predictors.

Results. Daily TIR ≥70% was associated with meals richer in whole grains and extra virgin olive oil (EVOO) and not including pizza. Postprandial TIR ≥70% was observed after meals least rich in biscuits (breakfast) and pizza (dinner) and most rich in whole grains (breakfast, lunch, and dinner) and EVOO (dinner). EVOO was the main positive predictor of daily TIR, while whole grains were the main positive predictor of lunch TIR ≥70%. Biscuits and pizza were the main negative predictors of TIR ≥70% at breakfast and dinner, respectively.

Conclusions. The results of this study show, for the first time, that the type of food consumed influences the performance of an HAP system in the management of postprandial glycemia.

COD. P092

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10757

DIET- PREVENTION OF SARCOPENIA AND REDUCTION OF CARDIOVASCULAR RISK IN THE ELDERLY: PRELIMINARY DATA

S. Toniazzo[1], G. Tognana[1], M. Cazzola[1], M. Boscolo Momolina[1], Z. Chiara[1], A. Selena[1], S. Regnotto[1], F. Francini Pesenti[1], P. Spinella[1]

[1]*Dietetic and Clinical Nutrition Unit, Department of Medicine (DIMED), University of Padova, Padova, Italy*

Rationale: Sarcopenia and cardiovascular disease are risk factors for the development of frailty syndrome, with increased morbidity and mortality. The Mediterranean diet has favorable effects on health, helping to reduce cardiovascular risk and prevent sarcopenia even in the elderly.Methods: Elderly (≥65 years) with a Body Mass Index (BMI) value of 20-30 kg/m2, free from chronic uncontrolled pathologies and physical-cognitive-neurological disabilities are recruited. The Mediterranean dietary intervention includes 25-30 Kcal/kg/day and 1-1.2 g of protein/kg/day, with an increased fiber, vegetable proteins and polyunsaturated fatty acids (PUFA) daily intake, a major protein intake at breakfast, and a daily reduction of salt and Kcalories from saturated fatty acids (SFA). For each outpatient, eating habits are investigated and Barthel's index, anthropometric and bioimpedance measurements, handgrip, Short Physical Performance Battery (SPPB) are collected. Sarcopenia is assessed according to the 2019 EWGSOP2 guidelines. Outpatients are followed up with a re-assessment of the same protocol every 3 months, for 12 months. Blood lipids are checked every 6 months.Results: Up until now, 36 subjects aged 71±4 years with a 6 months follow-up were analyzed; none were malnourished or sarcopenic at baseline, 64% were hypertensive and 75% were dyslipidemic. We observed a reduction in weight (Δ=-1 kg; p=0.015), BMI (Δ=-0.33 kg/m2; p=0.03), waist circumference (Δ=-2.5 cm; p= 0.0001); lean mass tended to increase (FFMI – Fat Free Mass Index: Δ=+0.43 kg/m2; p=0.011), despite a non-statistically significant reduction in blood total cholesterol, lipoprotein cholesterol (LDL-C) and triglycerides. Blood LDL-C levels were negatively correlated with PUFA intake (r=-0.392, p=0.018); blood total cholesterol and triglycerides were negatively correlated with daily protein intake (r=-0.362, p=0.03, r=-0.342, p=0.041, respectively).Conclusion: From this preliminary analysis, a balanced dietary intervention redistributing daily protein intake at meals and modifies the quality of fatty acids, could improve the management of dyslipidemia and be useful in the prevention of cardiovascular diseases in the elderly, while preserving lean mass.

COD. P093

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10759

Food supplements: purchase motivation, knowledge and perception of consumers

R. La Brasca[1], M. Bagni[2], E. Ventura[3], C. Ferraris [1], G. Teppa[1], L. Decastelli[1], D.M. Bianchi[1]
[1]*Istituto Zooprofilattico Sperimentale del Piemonte Liguria e Valle d'Aosta*
[2]*Ministero della Salute*
[3]*Libero professionista*

Food supplements (FS) are concentrated sources of nutrients or other substances with a nutritional or physiological effect, used to supplement a normal diet. During the COVID-19 pandemic, the use of FS increased substantially; in fact, many people sought protection through their consumption because of their beneficial effects. Data on the use of FS in Europe are still limited, and the main data available come from commercial market analyses and consumer surveys. The consumption of FS is constantly increasing among competitive athletes, sportspeople and subjects without nutritional or physiological needs. This project aims to investigate through a questionnaire the consumers approach to food supplements in terms of knowledge, purchase motivation and confidence. Preliminarily a one-hour focus group was conducted with a homogenous group of sportsmen and their families, then a questionnaire of 24 questions was submitted to participants. Questions were administered with online audience system. Total number of participants was 44: 15 parents/adult relatives and 29 young athletes (aged 16-19). The answers showed that FS are correctly considered to be a food and not a drug, by the majority of the interviewed group (64%). Among respondents, 34% declared to use food supplements, and 48% of them use FS only occasionally without following the indications of physician or nutritionists. Only 16% declared a continuous use of FS. Regarding food labelling, 34% of FS consumers stated they did not read FS labels and the most appreciated feature was the easiness to read. Results of this preliminary study therefore highlight the need of information moments by authorities such as universities, schools, sports clubs, and experts such as physicians, dietitians, nutritionists and athletic trainers to make people aware of the correct use of FS; additionally public health authorities should encourage FS producers to create labels easy to read and provide people tools to understand and interpret food supplement labels.

Bibliography

European Food Safety Authority. Food supplements. Available from: https://www.efsa.europa.eu/en/ topics/topic/food-supplements

Dietary Supplements and Nutraceuticals under Investigation for COVID-19 Prevention and Treatment; Ronan Lordan, Halie M. Rando, COVID-19 Review Consortium, Casey S. Greene

Habits and beliefs related to food supplements: Results of a survey among Italian students of different education fields and levels Felice Sirico, Salvatore Miressi, Clotilde Castaldo, Rocco Spera, Stefania Montagnani, Franca Di Meglio, Daria Nurzynska Department of Public Health, University of Naples Federico II, Naples, Italy

COD. P094

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10760

Acute effect of highbush blueberry consumption on vascular function in a group of older subjects: data from a randomized, controlled, crossover trial

M. Tucci[1], C. Del Bo' [1], D. Martini [1], C. Gardana[1], M. Marino[1], A. Leone[2], S. Perna[1], G. Aldini[3], A. Battezzati[2,4], S. Bertoli[2,4], P. Marisa[1], P. Riso[1]

[1]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Human Nutrition, Università degli Studi di Milano, Milano, Italy*

[2]*International Center for the Assessment of Nutritional Status and the Development of Dietary Intervention Strategies (ICANS-DIS), Department of Food, Environmental and Nutritional Sciences (DeFENS), Università degli Studi di Milano, Milano, Italy*

[3]*Department of Pharmaceutical Sciences (DISFARM), Università degli Studi di Milano, Milano, Italy*

[4]*Clinical Nutrition Unit, Department of Endocrine and Metabolic Diseases, Istituto Auxologico Italiano, IRCCS, Milano, Italy*

Blueberries represent a source of polyphenols such as anthocyanins, able to affect vascular function. Available studies on vascular effects mainly involved subjects with cardiovascular risk factors or vascular dysfunction, while evidence on the effects of blueberry intake in older subjects are lacking, as we recently documented in two systematic reviews. To address this gap, a randomized, controlled, crossover trial was performed. Twenty subjects (age ≥ 60 years) were randomly allocated to receive a portion of 250 g of frozen blueberries, or a control product constituted by water and matched for sugar content. The tested portion of blueberries provided 482 mg of total anthocyanins, mainly constituted by delphinidin-3-galactoside (31,7%), malvidin-3-galactoside (16,9%), and cyanidin-3-arabinoside (14,7%). Reactive Hyperaemia Index (RHI), a marker of vascular function, was assessed through a bio-sensor device (EndoPAT 2000) at baseline and following 2 h from the intake of blueberry or control product. The bioavailability of anthocyanins was evaluated in serum at baseline and following 1 h, 1.5 h, 2 h and 4 h through UHPLC-MS. Repeated measures ANOVA was used to identify significant differences in RHI between treatments. Pearson coefficient was used to identify correlations between serum anthocyanins and RHI variations. Sixteen subjects completed the study (mean age 69.1 ± 4.7 years). Blueberry consumption resulted in a higher increase of RHI at 2 h compared to control (delta RHI: 0.85, +53.5%, Vs 0.44, +24.1%, respectively; $p < 0.05$). The kinetics of absorption of anthocyanins showed a max total concentration at 2 h (20.7 ± 7.4 ng/mL). No correlations were found between RHI improvement and total anthocyanin levels, but a significant correlation ($p<0.001$) was found with delphinidin-3-glucoside levels ($p < 0.01$). In conclusion, these results corroborate the favourable impact of blueberries on the modulation of vascular function also in older subjects. These effects can be attributed, at least in part, to anthocyanins such as delphinidin, in accordance with what previously reported by in vitro studies.

1. Tucci et al., 2022; Nutrients. DOI: https://doi.org/10.3390/nu14132615

2. Martini et al., 2023; J. Nutr. Biochem. DOI: https://doi.org/10.1016/j.jnutbio.2022.109154

COD. P095

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10761

HEALTHY AND SUSTAINABLE DIETARY PATTERN: RESULTS FROM A PILOT RANDOMIZED, CONTROLLED, TRIAL IN A GROUP OF HEALTHY YOUNG VOLUNTEERS

V. Vinelli[1], M. Tucci[1], D. Martini[1], S. Perna[1], G. Mantegazza[2], G. Gargari[2], P. Biscotti[1], A. Trezza[1], R. De Amicis[3,4], A. Battezzati[3,4], S. Bertoli[3,5], A. Leone[3], S. Guglielmetti[2], M. Porrini[1], C. Del Bo'[1], P. Riso[1]

[1]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Human Nutrition, Università degli Studi di Milano, Milano, Italy.*

[2]*Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Food Microbiology and Bioprocesses, Università degli Studi di Milano, Milano, Italy.*

[3]*International Center for the Assessment of Nutritional Status and the Development of Dietary Intervention Strategies (ICANS-DIS), Department of Food, Environmental and Nutritional Sciences (DeFENS), Università degli Studi di Milano, Milano, Italy*

[4]*Clinical Nutrition Unit, Department of Endocrine and Metabolic Diseases, Istituto Auxologico Italiano, IRCCS, Milano, Italy*

[5]*Lab of Nutrition and Obesity Research, Istituto Auxologico Italiano, IRCCS, Milan, Italy*

Increasing evidence shows that the transition from low-quality diets to plant-based diets is fundamental for improving both human and planet health. However, the significant substitution of animal with plant-based foods poses important questions on actual impact on nutritional status as regard specific micronutrients content and bioavailability. We developed a healthy and sustainable dietary pattern based on the Planetary health diet and adapted for the Italian population (EAT-IT)1. A pilot, randomized, controlled, trial has been performed on a subgroup of healthy volunteers (n=10) to verify the level of adherence to this dietary pattern and to estimate its acceptability and feasibility, but also to explore the impact of the diet on nutritional, metabolic and functional status. Participants (25 ± 2 y) were randomly allocated to follow the EAT-IT or the Control diet (based on the Italian Dietary Guidelines). Nutrient intake was assessed through weighted food records. Biological samples were collected at the beginning and at the end of the intervention to assess health-related parameters. The EAT-IT diet was considered sufficiently acceptable by the 9 subjects who completed the study as assessed through validated questionnaires. The evaluation of dietary intake showed no differences in total energy and other nutrient intake despite a significant increase of vegetal protein/total protein (p=0.001) and dietary fibers (p=0.0008) compared to the Control group. Among biochemical parameters, only a significant decrease of insulin (p=0.02) and a reduction of cholesterol close to significance (p=0.067) was found after the EAT-IT pattern. These reductions were apparently positively related to age, but not to other factors. In addition, total SCFAs did not change following the EAT-IT diet probably due to the high inter-individual variability and small sample size; however, a correlation between total fiber intake and valeric and isovaleric acid was found. This pilot study represents the first step in the path towards the optimization of acceptable, healthy and sustainable dietary patterns to be further explored in targeted interventions that will be developed within the ONFOODS project.

1Tucci et al (2021) DOI: 10.3390/foods10030558

COD. P096

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10763

Low potassium intake: a common risk factor for nephrolithiasis in patients with high blood pressure

N. Altavilla[1], V. Abate[1], A. Vergatti[1], A. Zarrella[1], G. De Filippo[2], P. Strazzullo[1], L. D'Elia[1], D. Rendina[1]

[1]*Department of Clinical Medicine and Surgery, University Federico II, Naples, Italy*

[2]*Assistance Publique-Hôpitaux de Paris, Hôpital Robert-Debré, Service d'Endocrinologie-Diabétologie, 75019 Paris, France*

Hypertension (Htn) is a crucial cause of cardio-vascular and chronic kidney disease. Moreover, it is an independent risk factor for nephrolithiasis (NL). A diet rich in vegetables and fruits is indicated for both Htn and NL prevention, and the 24-hour urinary potassium excretion can be used as a warning light for adherence. The aim of this study is to demonstrate the association between urinary potassium excretion and recurrent nephrolithiasis among patients affected by Htn. We have analyzed medical records of 119 patients affected by Htn and NL (SF-Hs) referring to Bone and Mineral Metabolism laboratory and 119 patients affected by Htn but without NL (nSF-Hs) referring to Hypertension and Organ Damage Hypertension related laboratory, both in Federico II University of Naples. The potassium 24-hour urinary levels in SF-Hs were significantly lower compared to nSF-Hs. This difference was confirmed by the multivariable linear regression analysis in the unadjusted model and adjusted model for age, gender, metabolic syndrome, and body mass index. In conclusion, a higher potassium urinary excretion in 24-hour is a protective factor against NL in patients affected by Htn and dietary interventions can be considered for kidney protection.

COD. P097

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10765

Reformulation of food products on the Italian market within the ONFOODS project (EFFORT)

D. Martini[1], M. Tucci[1], C. Del Bo'[1], A. Dolci[2], V. Rapetti[3], C. Rebosio[4], M. Dall'Asta[5], E. Marconi[6], A. Bordoni[7], L. Mannina[8], D. Del Rio[9], P. Riso[1]

[1]Department of Food, Environmental and Nutritional Sciences (DeFENS), Division of Human Nutrition, Università degli Studi di Milano, Milano, Italy

[2]Research and Development Department, Bolton Food SpA, 20124 Milan, Italy

[3]Global Nutrition & Wellbeing Unit, Research, Development & Quality Group, Barilla G. e R. Fratelli, Parma, Italy

[4]Tecnoalimenti (TCA), Milan, Italy

[5]Department of Animal Science, Food and Nutrition (DiANA), Università Cattolica del Sacro Cuore, Piacenza, Italy

[6]Council for Agricultural Research and Economics (CREA), Research Centre for Food and Nutrition, Rome, Italy

[7]Department of Agri-Food Sciences and Technologies (DISTAL), University of Bologna, Cesena, Italy

[8]Department of Chemistry and Technology of Drugs, Sapienza University of Rome, Rome, Italy

[9]Department of Food and Drug, Human Nutrition Unit, University of Parma, Parma, Italy

Sodium, sugar and saturated fat (SFA) intake in the Italian population is still higher compared to the dietary recommendations, while fiber intake is far below, especially in specific target groups. An inadequate intake of these components is associated with an increased risk of non-communicable diseases. In many developed countries, including Italy, a significant proportion of sodium, sugar and SFA in the diet comes from packaged foods added by manufacturers, while fiber content is often low also in products belonging to food groups naturally source of fiber such as cereal-based foods. Conversely, only a minor amount of these nutrients comes from culinary ingredients (e.g., sugar, oil, butter) that are discretionally used. Thus, an effective strategy to reduce the intake of sodium, sugar, SFA and to increase fiber intake could be represented by the reformulation of foods that are frequently consumed in the Italian population and therefore contribute to most of the intake of these components. Within ONFOODS project, it has been developed the collaborative research initiative EFFORT, with the intention to investigate the impact of food reformulation on nutrient intake. The project will consist of various operational steps: i) Identification of the main categories of products contributing to salt, SFA, sugar and fiber intake in the Italian population by considering the actual food consumption in the general population and in different target groups; ii) Analysis of salt, SFA, sugar and fiber content in food products currently on the Italian market; iii) Reformulation of food products to reduce salt, SFA, sugar content and increased fiber content; iv) Evaluation of the potential impact of the inclusion of reformulated food products on nutrient intake in the Italian population based on actual food consumption data. The project will enable to simulate the practical benefits in terms of diet quality achieved through the reformulation of several food categories. The collaboration with food companies will be pivotal to increase the availability and analysis of data from the Italian market and to optimize the use of results in order to design accessible, affordable and acceptable new food products with implemented nutritional quality.

COD. P098

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10766

Adhesion to Mediterranean Diet and dietary salt habits in stone forming patients

N. Altavilla[1], V. Abate[1], A. Vergatti[1], A. Zarrella[1], P. Iaccarino Idelson[1], D. Di Domenico[2], D. Prezioso[2], R. Muscariello[3], V. Nuzzo[3], G. De Filippo[4], P. Strazzullo[1], L. D'Elia[1], D. Rendina[1]

[1]*Department of Clinical Medicine and Surgery, University Federico II, Naples, Italy*

[2]*Department of Neuroscience, Reproductive Sciences and Dentistry, Federico II University, Naples, Italy*

[3]*Endocrinology and Nutrition Department, Ospedale del Mare, Naples, Italy*

[4]*Assistance Publique-Hôpitaux de Paris, Hôpital Robert-Debré, Service d'Endocrinologie-Diabétologie, 75019 Paris, France*

Object: Unhealthy dietary habits play a key role in the pathogenesis of nephrolithiasis (NL) and its recurrence. Aim of this cross-sectional study was to evaluate the degree of adhesion to the Mediterranean Diet (MD) and the dietary salt habits of stone forming patients (SF) referred to the Extracorporeal Shockwave Lithotripsy (ESWL).

Methods: We recruited SF undergoing ESWL from 01/ 01/ 2019 to 12/31/2019 (SF-ESWL-2019), SF who had previously undergone ESWL between 01/ 01/ 2018 and 12/31/2018 (SF-ESWL-2018), and non-stone formers (NSF). All study participants were interviewed between 01/01/2019 and 12/31/2019, in person (SF-ESWL-2019 n=200 and NSF n=535) or by phone (SF-ESWL-2018 n=55), using the validated MEDI-LITE and MINISAL questionnaires to estimate the degree of adhesion to MD and the dietary salt habits.

Results: Both SF-ESWL-2019 and SF-ESWL-2018 patients showed a lower adhesion to MD and a higher estimated salt consumption compared to NSF ($p < 0.05$). No significant difference was observed between SF-ESWL-2019 and SF-ESWL-2018. Multivariate models indicated that, for each increasing point of MEDI-LITE score, the risk of NL requiring ESWL decreases by 36% [OR: 0.64 (0.59-0.70); $P<0.01$], and that, for each increasing point in MINISAL score, the risk increases by 13% [OR: 1.13 (1.03-1.25); $P=0.01$]. The risk of NL requiring ESWL reduced by 85% [OR: 0.15 (0.07 – 0.35); $p<0.01$] when the highest adhesion to MD was combined to the lowest salt intake.

Conclusion: The lower adhesion to MD and the higher salt consumption observed in SF-ESWL patients point to an inadequate primary and secondary dietary prevention of NL.

COD. P099

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10767

Sleep hygiene and the Mediterranean Diet: the SON-MED intervention study

P. Degli Innocenti[1], E. Bertolotti[1], J. Rebelo[1], F. Rausa[2], S. Pizzarotti[2], C. Mutti[2], V. Deon[3], V. Rapetti[3], L. Parrino[2], F. Scazzina[1], A. Rosi[1]

[1]*Dept. of Food and Drug, University of Parma, Italy*

[2]*Dept. of Medicine and Surgery, University of Parma, Italy*

[3]*Global Nutrition & Wellbeing Manager, Barilla G. e R. Fratelli S.p.A., Parma, Italy*

Chronic insomnia is a very common disease, with numerous associated comorbidities and is correlated with a general decline in quality of life. Despite the Mediterranean Diet (MD) has been positively associated to sleep hygiene, its specific effect on chronic insomnia has still poorly explored. The present work aims to measure the impact of a nutritional and educational intervention, based on the principles of the MD, compared to conventional therapy alone, on a group of adult patients suffering from chronic insomnia. Of the 79 subjects initially contacted, 55 were enrolled and started the intervention (mean age 48 ± 9 years, 36% males): 27 subjects were randomly assigned to the nutritional and educational intervention group and 28 subjects to the control group. All subjects received the standard clinical therapy. At the beginning and 3 months after the intervention, anthropometric and cardiac parameters are measured and food intake, adherence to the MD, physical activity level, perceived quality of life, sleep quality and chronotype are assessed through validated questionnaires. Sleep and physical activity are also evaluated using an actigraphy sensor. Last, extemporaneous urine samples for metabolomic profile assessment and saliva samples for mi-RNA assay are collected. Telephone interviews are conducted one and two months after the beginning of the intervention to increase and investigate the adherence to the dietary prescription. At baseline, the mean value of body mass index was 25.5 ± 5.2 kg/m², waist-to-hip ratio was 0.88 ± 0.08 and physical activity level (IPAQ questionnaire) was 1.6 ± 0.3. Adherence to the MD (MEDILITE questionnaire), had an average score of 11.3 ± 2.7. The average sleeping time measured with the FitbitFlex2™ was 384 ± 69 min. No significant differences were observed for all variables between the two groups at baseline. The study is still ongoing, and only 13 subjects have completed the intervention (term scheduled for May). Therefore, no statistical analysis is yet available to draw significant conclusions. In the coming months, data obtained from this study could support the hypothesis also known in the literature regarding a link between sleep hygiene and the MD, suggesting new approaches and treatments of chronic insomnia.

COD. P100

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10769

Nutritional treatment drop-out rate according to eating behaviour and gender in a cohort of pre-bariatric surgery subjects

M. Di Lorenzo[1], L. Mauriello[1], C. Gautiero[1], E. Fei[1], A. Filosa[1], M. Chiurazzi[1], M.S. Lonardo[1], N. Cacciapuoti[1]

[1]*Department of Clinical Medicine, University of Naples Federico II, 80131 Naples, Italy*

Nowadays, bariatric surgery (BS) is considered the most effective therapeutic strategy to induce weight loss (WL) reducing comorbidity and mortality in patients with severe obesity.
In pre-surgery interval, a valid nutritional management plays a key role in order to obtain WL and avoid micronutrient deficiency reducing peri-surgical and post-bariatric complications.
The aim of this study was to assess, during the pre-bariatric period, if there was an association between eating behaviour (EB) patterns and nutritional treatment drop-out rates in a cohort of BS candidate subjects.
86 patients (56 F) with Body Mass Index (BMI) ≥ 35 kg/m2, attending at Outpatients Clinic of the I.P. “Diet Therapy in transplantation, renal failure and chronic pathology”, University of Naples Federico II, were recruited. At baseline (T0), subjects enrolled showed different EB patterns (diagnosed after psychiatric counseling): 32,5% gorging (Go), 15% grazing (Gr), 8,5% binge eating (BE), 1% loss control of eating (Le), 1% Night Eating Syndrome (NES), 3,5% sweet-eating (SE), 1% Go+SE, 32,5 % Go + snacking (Sn), 1,5% Go + NES, 1% Gr + NES, 2,5 % Gr + SE.
All subjects were stratified into different groups according to gender and EB. Anthropometric measurements and body composition analysis were evaluated at T0 and after 3 months (T1) and 6 months (T2) of treatment with a hypocaloric low-carb diet.
Women showed a more varied pattern of EB and Go and Gr (±snacking or sweet-eating) were the ones most represented in both genders.
At T1, 39,5 % (M 38,2%, F 61,8%) of subjects dropped-out independently of EB and gender; no differences in EB patterns were detected in 60,5% (M 32,7%, F 67,3%) who returned for nutritional follow-up. Among these subjects, at T2 26,9% (M 28,6%, F 71,4%) dropped-out and, again, this finding was independent of EB pattern in both genders.
In conclusion, our preliminary results showed that there is no association between pre-BS drop-out rate and EB as well as any EB seems to show better results about WL detected at both T1 and T2. Further data on a larger population are needed to confirm our preliminary results.

COD. P101

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10770

Hyperphenylalaninemia: effects of dietary therapy on phenylalanine blood levels in pregnancy and clinical parameters of offspring at birth

C. Gautiero[1], G. Esposito[1], N. Serao[1], E. Fiorillo[1], N. Cacciapuoti[1], M.S. Lonardo[1], M.R. Coppola[1], B. Guida[1]

[1]*Department of Clinical Medicine and Surgery, Physiology Nutrition Unit, Federico II University of Naples*

In pregnant women with Hyperphenylalaninemia (HPA), Maternal Phenylketonuria Syndrome (MPKUS) is a teratogenic syndrome characterized by reduced intrauterine growth, microcephaly, cardiovascular malformations, facial dysmorphism, and behavioral abnormalities in infants. High phenylalanine (Phe) levels at conception and during the first trimester, a crucial period in fetal organogenesis, increase the risk of MPKUS. Low Phe concentrations (2-6 mg/dL) are recommended to prevent MPKUS. Pregnancy planning and adherence to dietary therapy (DT) play a key role in metabolic control.

The aim of this retrospective study is to evaluate the effects of DT on both maternal Phe blood levels and clinical parameters of offspring at birth; moreover, factors influencing maternal metabolic control were researched. The study of successfully completed pregnancies (N=15, including multiple pregnancies, 5 planned pregnancies PPs, and 10 unplanned pregnancies UPs) of 11 women with HPA, attending the Department of Clinical Medicine and Surgery, University of Naples Federico II, was performed using dietary interviews and Phe assays. Offspring outcome was assessed using medical records provided by the women; Weight and Length Percentiles (WPs; LPs), Head Circumference (HC), and Apgar Index (AI) were evaluated.

Observed results showed optimal Phe levels at conception in PPs (2.6±1.3 mg/dL), women started DT before pregnancy and offspring at birth had all clinical parameters in the normal range (LPs 47.6°±22.6; WPs 56.2°±25.0; HC 33.4±1.2 cm; AI 8.2±0.8). In contrast, in 6 UPs, women started DT after conception, Phe levels were out of range especially during the first trimester (11.8±4.0 mg/dL) and offspring showed reduced intrauterine growth compared with offspring of PPs (LPs 13.7°±25.2; WPs 20.2°± 26.7; $p<0.05$). Finally, in 4 UPs, women never started DT, Phe levels were out of range at conception and throughout pregnancy (25.4±1.5 mg/dL), and offspring showed MPKUS. In addition, the clinical phenotype of the women influenced metabolic control.

Optimal Phe levels at conception are a prerequisite to prevent MPKUS in offspring. This goal can be achieved with careful pregnancy planning and preconception DT.

COD. P102

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10772

Meat-based diet significantly affects risk parameters for colorectal cancer: the MeaTIc dietary intervention study

M. Dinu[1], G. Pagliai[1], S. Lotti[1], B. Colombini[1], I. Giangrandi[6], M. Tristan Asensi[1], A. Napoletano[1], C. De Filippo[2], L. Giovannelli[3], S. Ristori[4], J. Bouwman[5], S. Özsezen[5], G. Caderni[3], F. Sofi[1,6]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy*

[2]*Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*

[3]*Institute of Agricultural Biology and Biotechnology (IBBA), National Research Council (CNR), Italy*

[4]*Department of Neuroscience, Psychology, Drug and Child Health (NEUROFARBA), University of Florence, Florence, Italy*

[5]*Department of Experimental and Clinical Biomedical Sciences "Mario Serio", University of Florence, Florence, Italy*

[6]*Organisation for Applied Scientific Research (TNO), Netherlands*

Background: The aim of the MeaTIc study was to determine the impact of three diets associated with different risks of colorectal cancer (CRC) [a meat diet (MBD: high risk), a meat diet with alpha-tocopherol supplementation (MBD-T: medium risk), and a pesco-vegetarian diet (PVD: low risk)] on CRC risk markers and fecal microbiota.

Methods: A controlled, randomized, open-label, parallel-group, 12-week dietary intervention was conducted on 113 participants aged 18-50 years. The primary outcome was change in fecal water (FW) genotoxicity. Secondary outcomes were changes in FW cytotoxicity, bile acids, fecal microbiota, and metabolomic profiles.

Results: A total of 103 participants (91%) completed the study. After adjustment for possible confounding factors, a significant increase ($p<0.05$) in FW genotoxicity (+43%) was observed only in the MBD group. Regarding FW cytotoxicity, a decrease in cell viability (-7%, $p=0.054$) was observed after MBD, while no changes occurred for the other diets. Bile acid analysis showed a significant increase in total bile acids during MBD (+55%) and a significant decrease during MBD-T (-4.5%), suggesting a possible protective role of alpha-tocopherol. Specifically, during MBD significant increases were observed for hyodeoxycholic (+116%), deoxycholic (+54%), lithocholic (+53%), and isolithocholic (+49%) acids. Correlating changes in bile acids with FW genotoxicity and cytotoxicity, a moderate correlation ($R=0.66$; $p<0.0001$) emerged between changes in total bile acids and changes in FW cytotoxicity. Linear discriminant analysis (LDA) of changes in the gut microbiota revealed no clustering by diet, while metabolomic analysis showed clear clustering of changes in metabolites. A random forest regression model identified 2-hydroxybutyric acid and cholic acids among the metabolites most correlated with FW genotoxicity ($R^2 = 0.84$ for the model).

Conclusion: These results indicate that MBD can lead to a worsening of CRC markers in a relatively short time. Our findings also suggest that intervention diets had a greater impact on the metabolism of the gut microbiota and thus its metabolites than on its taxonomic composition. A correlation between some metabolites and FW genotoxicity was also found.

COD. P103

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10773

Nutritional status, eating habits and lifestyle of children enrolled in primary schools in Parma: a prospective study

D. Callegaro[1], S. Callegaro[1], A. Rosi[1], B. Biasini[1], F. Scazzina[1,2]

[1]*Dip. Scienze degli Alimenti e del Farmaco Università degli Studi di Parma*

[2]*Giocampus Steering Committee , Parma , Italy*

Introduction: The worldwide incidence of overweight and obesity is increasing in all age groups, particularly in children. Considering the strong influence of diet and lifestyle on health, monitoring diet, physical activity and sleep quality is instrumental in developing primary prevention intervention programmes to improve people's quality of life. The adoption of virtuous behavioural models from the paediatric age favours the development of a healthy lifestyle and correct eating habits in adulthood.

Objectives: The present study aims to prospectively monitor the nutritional status, eating habits and lifestyle of children attending primary schools in Parma within Giocampus project for five years starting from the current school year.

Methods: The assessment of nutritional status includes the collection of anthropometric data (weight, height, waist circumference) and body composition estimation using Bioelectrical Impedance Analysis (BIA) scales. To assess food habits and lifestyle, a questionnaire is administered at individual level by trained personnel to ensure the correct understanding of the questions. The questionnaire investigates the consumption habits of the five daily meals, socio-demographic conditions, sports practice, time spent in sedentary activities and sleeping habits. The KIDMED questionnaire is administered only to 5th-grade pupils (≥10 years) to assess adherence to Mediterranean Diet (MD). For the 2022/23 year (t1), the 1st and 5th graders were enrolled. Data collection will stop for the oldest cohort and will continue for the youngest cohort until the 2026/27 school year (t5). To allow within and between subjects comparison across the time, at t5 also the 1st graders will be enrolled.

Preliminary results: Up to mid-April 2023, the sample consisted of 391 first-grade (51.2% boys) and 536 fifth-grade children (48.7% boys). The prevalence of children skipping breakfast is low (7.6%). About half of them drank milk (53.1%) and less than 5% consumed fruit, cereals or yoghurt for breakfast on the day the questionnaire was administered. The adherence to the MD was medium (5.6±2.3). Most of the children do sport (80.0%) and sleep more than 9 hours per night (72.9%).

COD. P104

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10774

Effects of omega-3 fatty acids supplementation on revascularization and major cardiovascular events: a systematic review and meta-analysis

M. Dinu[1], S. Lotti[1], A.V. Mattioli[2], G.F. Gensini[3], G. Ambrosio[4], F. Sofi[1,5]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy*

[2]*Department of Medical and Surgical Sciences, University of Modena and Reggio Emilia, Modena, Italy*

[3]*Scientific Direction, IRCCS MultiMedica, Milan, Italy*

[4]*Division of Cardiology, Center for Clinical and Translational Research – CERICLET, University of Perugia, Perugia, Italy*

[5]*Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*

Background: The clinical benefits of omega-3 fatty acids (FA) supplementation in preventing and treating cardiovascular disease remain controversial. The aim of this study was to investigate the effects of omega-3 FA administration on revascularization and adverse cardiovascular events including myocardial infarction, stroke, unstable angina, heart failure, and cardiovascular events/mortality using a meta-analytical approach.

Methods: A comprehensive search of MEDLINE, Embase, Scopus, Web of Science, and Cochrane Library was performed through January 2023. Randomized controlled trials (RCTs) including at least 500 participants that compared the effects of omega-3 FA formulations [eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), or the combination] versus placebo or standard of care controls were considered eligible.

Results: Our analysis included 16 RCTs that enrolled a total of 131,686 participants randomized to combined EPA+DHA (n=52,498), EPA alone (n=13,415), and control (n=65,771). Overall, omega-3 FA supplementation was associated with reduced risk of revascularization [RR 0.91, 95% CI 0.84-0.99; p het = 0.0002; I^2 = 69%; p = 0.02] and myocardial infarction [0.89, 95% CI 0.80-0.98; p het = 0.04; I^2 = 45%; p = 0.02] compared to controls, but had no significant effect on stroke, unstable angina, heart failure, and cardiovascular events/mortality. Comparing combined EPA+DHA and EPA, EPA alone was associated with a greater reduced risk of revascularization [0.76, 95% CI 0.63-0.94] and myocardial infarction [0.72, 95% CI 0.62-0.83], and a significantly reduced risk of stroke [0.72, 95% CI 0.55-0.95] and unstable angina [0.73, 95% CI 0.62-0.85]. No significant differences were observed according to EPA+DHA dose, EPA dose, and statin use.

Conclusion: Omega-3 FA supplementation was associated with a reduced risk of revascularization and myocardial infarction compared with controls. The use of EPA alone appeared to be associated with even greater benefits, but further high-quality studies are needed to clarify the role of omega-3 FA supplementation in the primary and secondary prevention of cardiovascular disease.

COD. P105

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10775

Baseline dietary patterns in Breast Cancer (BC) patients living in a Mediterranean area by Latent Class Analysis (LCA)

G. Porciello[1], A. Luongo[1], S. Coluccia[1], S. Vitale[1], E. Palumbo[1], R. Pica[1], M. Grimaldi[1], A. Crispo[1], M. De Laurentiis[2], D. Serraino[3], F. Ferraù[4], G. Thomas[5], F. Messina[6], V. Montesarchio[7], F. Catalano[8], M. Libra[9], E. Celentano[1], L.S. Augustin[1]

[1]*Epidemiology and Biostatistics Unit, Istituto Nazionale Tumori, IRCCS Fondazione G. Pascale, Naples, Italy*

[2]*Division of Breast Oncology, Istituto Nazionale Tumori, IRCCS Fondazione Giovanni Pascale, Naples, Italy*

[3]*Unit of Cancer Epidemiology, Centro di Riferimento Oncologico di Aviano (CRO) IRCSS, Aviano, Italy*

[4]*U.O.C. Oncologia Medica, Ospedale San Vincenzo, Taormina, Italy*

[5]*Clinica Mediterranea, Naples, Italy*

[6]*Ospedale Evangelico Betania, Naples, Italy*

[7]*Division of Medical Oncology, AORN dei Colli Ospedali Monaldi-Cotugno-CTO, Naples, Italy*

[8]*Cannizzaro Hospital, Catania, Italy*

[9]*Department of Biomedical and Biotechnological Sciences, Oncologic, Clinical and General Pathology Section, University of Catania, Catania, Italy*

Principal component analysis (PCA) represents a way to identify specific dietary patterns from the habitual diet. Assessment of dietary pattern in relation to health outcomes and health-related quality of life (HRQoL) in cancer patients may provide more information than on individual foods. No studies have used a similar approach to describe dietary patterns in cancer patients living in Mediterranean area. In this analysis, we used latent class analysis (LCA), with PCA and k-means to describe food patterns of BC patients (N=377, BC stages I-III, mean age 52±9 years) at their baseline visit of the lifestyle trial DEDiCa conducted in three Italian regions: Friuli, Campania and Sicily. Dietary data were collected through 7-day food diaries; HRQoL was assessed through a validated questionnaire (EORTC C30). Mean dietary food intake in grams/1000 kcal and EORTC C30 Summary Score were calculated. The PCA principal component 1 was characterized by a higher contribution of vegetables (29%) and extra virgin olive oil and nuts (20%), while principal component 2 was largely expressed by cereals (50%) and sugars (39%). PCA identified three different clusters: healthy (HC), a Western (WC) and a high-sugar (HSC). HC was characterized by higher intakes in g/1000 kcal of vegetables (240.4±101.1; p<0.001), pulses (25.0±26.9; p<0.001), olive oil and nuts (23.4±10; p<0.001), fish (58.8±36.9, p<0.001), fruits (198.1±111.6; p<0.001). WC showed higher consumption of refined cereals (116.5±23.7; p<0.001) and animal products (141.3±72.3; p<0.001). HSC was characterized by higher sugar intake (56.6±33.3; p=0.371). HRQoL was higher in HC compared to WC (respectively 73.6±9.1 vs 70.5±9.9, p=0.009) or HSC (72.3±9.8, p=0.3), suggesting a better HRQoL score in HC. PCA results in this study helped to discriminate different HRQoL, however adjusted multivariate analysis will be able to confirm or not this initial finding.

COD. P106

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10777

Food groups included in Mediterranean hypocaloric diets and their adherence to the EAT-IT reference diet

A. Foppiani[1], R. De Amicis[1,2], A. Leone[1], D. Martini[3], M. Tucci[3], C. Del Bò[1,3], P. Riso[1,3], S. Bertoli[1,2], A. Battezzati[1,4]

[1]International Center for the Assessment of Nutritional Status and the Development of Dietary Intervention Strategies (ICANS-DIS), Department of Food, Environmental and Nutritional Sciences (DeFENS), University of Milan, 20133 Milan, Italy

[2]IRCCS Istituto Auxologico Italiano, Obesity Unit and Laboratory of Nutrition and Obesity Research, Department of Endocrine and Metabolic Diseases, 20145 Milan, Italy

[3]Department of Food, Environmental and Nutritional Sciences (DeFENS), University of Milan, 20133 Milan, Italy

[4]Clinical Nutrition Unit, Department of Endocrine and Metabolic Medicine, IRCCS Istituto Auxologico Italiano, 20100 Milan, Italy

The EAT-IT reference diet has been proposed as a Mediterranean dietary pattern in line with the EAT-Lancet Commission reference diet, based on 2500 kcal/day and adapted to the Italian food habits. While there is an urgent need to promote healthy and sustainable diets, it is not yet clear if they can be adapted to hypocaloric dietary interventions. Aim of this study is to analyze at the food-groups level historical diets prescribed to patients referring to the ICANS centre in Milan and seeking a weight-loss intervention.

Foods included in each diet were characterized according to the food subcategory defined in the EAT-IT diet, and for each diet an EAT-IT adherence score was computed as the percentage of food groups that were both included in the EAT-IT diet and respecting the expected daily or weekly amounts. Of the foods groups that resulted outside the EAT-IT diet limits, the most frequent were protein source (legumes 25.8%, fish 12.8%, red meat 12.8%), followed by vegetable oil (11.9%), and fresh fruits (11.1%). In particular, legumes were included in virtually all analyzed diet (99%), but respected the amount expected in the EAT-IT diet in <0.1% cases, with other protein sources following a similar pattern. Vegetable oil and fresh fruits were adherent in a few more cases (11% and 17%, respectively). On the other hand, complex carbohydrate sources (25% overall: 12.6% bread, and 12.4% pasta, rice, corn, spelt, and barley) and vegetables (21.3% overall: 10.9% leaf salad, and 10.4% fresh vegetables) were the most frequent food groups that resulted adherent to the EAT-IT diet.

The type of non-adherent food underline the critical issue of protein sources in an hypocaloric diet, where protein density relative to other macronutrients can be an issue. The need to reduce calorie is reflected in the lower amount of vegetable oil and the high adherence showed by complex carbohydrate sources. The aim of increasing micronutrients intake while consuming less food resulted in low adherence of the fruit group and high adherence of vegetables group.

This study shows that hypocaloric diets currently prescribed in general practice struggle to meet the sustainability requirements described in the EAT-IT diet, and work is needed to reconcile the two models in order to prescribe sustainable hypocaloric dietary interventions.

COD. P107

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10778

Weight gain in people living with HIV: role of a multidisciplinary approach

M. Di Lorenzo[1,2], M. Vitale[2], L. Santoro[2], M.A. Carleo[2], V. Rizzo[2], P. Rosario[2], A. Guida[2], R. Viglietti[3], O. Tambaro[3], F. Borrelli[3], F.M. Fusco[3], V. Esposito[2]

[1]*Department of Clinical Medicine, University of Study of Naples, Federico II*

[2]*Infectious Diseases and Gender Medicine Unit, AO dei Colli, PO Cotugno, Naples*

[3]*Infectious Diseases and Immunodeficiencies Unit, AO dei Colli, PO Cotugno, Naples*

People living with HIV (PLWH), although stably viro-suppressed, have a high risk for the onset of non-HIV-related metabolic diseases. Latest generation of antiretroviral drugs (ART) may contribute to weight gain and increased body mass index (BMI), worsening metabolic disorders. In addition, incorrect dietary habits, sedentary life and latent depressive states can also contribute to weight gain.

This project aims to evaluate the impact of a multidisciplinary approach to patients, including infectious disease specialist, nutritionist, psychologist and personal trainer in developing customized courses to improve well-being (Quality of Life, QoL) conditions and perception in PLWH.

78 subjects (59 Male) so far were enrolled among ones attending ambulatoy of Cotugno Hospital in Naples. Anthropometric measurements and body composition analysis were detected as well as dietary habits by Food Frequency Questionnaire and psychological conditions at baseline (T0) and during periodic follow-up.

All patients were offered an individualized dietary and physical activity program together with a psychological counseling. QoL was assessed through validated questionnaires (SF-36, HADS, VAS). Changes in clinical parameters and questionnaire scores were analyzed to assess the impact on QoL and an ad hoc web-app was set up to monitor the activities.

After the first evalution at T0, 39,7 % (77.4%M, 22,6 %F) of subjects dropped-out with no significant difference regardless of gender.

Subjects who attendend the first follow-up after 3 months showed a significant reduction in body weight (85,1±17,2 vs 82,6±17,5 Kg, $p< 0,01$) and BMI (28,7±5,6 vs 27,3±4,5Kg/m2, $p< 0,01$) as well as an improvement in body composition.

In addition, a significant increase in physical activity has been observed (39% vs 74%, $p<0.05$).

For QoL, follow-up data showed improvement in parameters measured through SF-36, HADS and VAS questionnaires.

Results obtained, although limited in sample size and follow-up time, suggest an improvement in the well-being of enrolled subjects. Thus, a multidisciplinary approach can be an important tool for increasing QoL in PLWH although further studies are needed to support these data.

COD. P108

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10779

How hospital workers perceive a sustainable diet: a cross-sectional study

L. De Carli [2], A. Devecchi[1], L. Torri[1], C. Gimbo[1], A. Pezzana[2]
[1]*University of Gastronomic Sciences, Pollenzo (Bra), Italy*
[2]*SC Clinical Nutrition, ASL Città di Torino, Torino, Italy*

Introduction: adopting healthy and sustainable diets is mandatory to promote the One Health. This is particularly true for people working in the hospital setting. Indeed, hospital frequently represents a potential place of nutrition and sustainability education for patients and workers, intended as employees whose health should be promoted.

Objectives: this study aims to evaluate attitudes and perceptions regarding a sustainable and healthy diet among hospital workers.

Material and methods: to assess attitudes and perceptions, we administered a validated questionnaire to 294 health professionals (physicians, nurses, administrative staff, and others) from April to September 2022. Specifically, the survey presented questions about perceived attributes to define a sustainable diet on a 5-point scale (1 = not important at all; 5 = very important).

Results: for females, some attributes to define a sustainable diet are more important than for males: no additives (4.56 ± 0.78 vs. 4.17 ± 1.07, p= 0.002), low processing (3.95 ± 1.50 vs 3.60 ± 1.57, p= 0.045), few ingredients (3.47 ± 1.50 vs. 3.02 ± 1.58, p= 0.037), and organic growth/ecologic products (4.54 ± 0.73 vs. 4.18 ± 0.97, p= 0.004). Furthermore the attribute “easy to follow” is more relevant for those living in cities than those living in the countryside (4.39 ± 0.99 vs 4.07 ± 1.09, p= 0.005 post-hoc Bonferroni-Dunn test). Finally, we found significant differences among professionals for the attributes “affordable” (p= 0,029), and “easy to follow” (p= 0,039) and among people with different education levels regarding the attribute “respect towards biodiversity” (p= 0.010).

Conclusions: hospital workers showed a positive attitude toward food sustainability, although differences emerged among individuals. The results showed a correlation between some variables (sex, place of residence, profession, and level of study) and individual perceptions and thus require targeted intervention through education, information, and motivation.

COD. P109

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10780

False myths and food beliefs: the role of Dietitian

A. Caracci[1]
[1]*Università di Tor Vergata*

False myths and food beliefs are widespread among people. Food myths are nutritional concepts that individuals believe to be true, but which are poorly justified or even contradict existing scientific evidence. For example, several think that drinking water during meals should be avoided, because it would not help digestion, or that there is a need to add salt to food, to meet the body's need for sodium.
These mental representations then have repercussions on food choices, and can lead people to follow a diet that is not optimal for health, and in some cases even to a state of malnutrition, due to a lack or excess of nutrients. This study aimed to investigate the level of dietary knowledge of a sample of people who visited the dietetics clinic of the San Giovanni Addolorata Hospital in Rome
The survey was conducted on 109 individuals, aged between 18 and 85, in the period October 2022/January 2023. These subjects were administered a questionnaire of 20 multiple choice questions, to be completed in the waiting room. The quiz was designed to detect the level of nutritional knowledge of the participants, and whether they were influenced by food myths and erroneous beliefs.
One point was awarded for each correct answer, and on the basis of the results obtained, 74% of the sample showed that they possessed a sufficient level of food knowledge; 12% good and 14% poor. None have reached an excellent level. The inferential statistics showed a high correlation between the degree of food culture and some variables: young age, higher education level, having previously consulted a nutrition expert, and having documented oneself with reliable sources, to increase one's nutritional knowledge. In contrast to this, no link has been identified between gender and the degree of food culture. To counter misinformation and help the patient make optimal food choices, the dietitian has a very important role. The tool that can be used in this case is nutritional education.
During the visit, the dietitian should dedicate some time to identify the knowledge deficiencies, the educational needs of the person in front of him/her; establish the objectives to be achieved; apply the principles of Therapeutic Education to nutrition, adapting the method and the pedagogical approach to the patient; evaluate the effectiveness of its intervention. The dietician, as an expert in nutrition, also has the task of directing the person towards reliable sources from which to obtain information on nutrition, to make the patient autonomous and an active part in building his health or in the better management of his pathology.

COD. P110

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10781

Nutrition as a modifiable risk factor for autoimmune disease onset: from single foods to complex dietary patterns.

C. Barbero Mazzucca[1,2], G. Cappellano[1,2], L. Scotti[3], F. Barone Adesi[3], A. Chiocchetti[1,2]

[1]*Interdisciplinary Research Center of Autoimmune Diseases-IRCAD, Dip. di Scienze della Salute, Università del Piemonte Orientale, Novara.*

[2]*Center for Translational Research on Autoimmune and Allergic Diseases—CAAD, Università del Piemonte Orientale, Novara.*

[3]*Dipartimento di Medicina Traslazionale, Università del Piemonte Orientale, Novara.*

Autoimmune diseases (ADs) are a public health burden caused by inappropriate activation of the immune system. Their rising incidence in industrialized countries has been correlated with the nutritional transition from the Mediterranean Diet (MD) to the Western dietary pattern (WD)[1]. Nutritional immunology has provided interesting insights about the protective or detrimental role of nutrition in modifying the disease susceptibility, but a clear association has not been proven, yet. In MINDFUL study (Microvescicles: INtersection between autoimmune Diseases, Food and Unheathy Lyfe-styles) we comprehensively investigate the role of diet and microbiota modifications in ADs prevention from a narrow to broad perspective. Exploiting one of the largest publicly available research resource, the United Kindgom (UK) biobank, we were able to identify subjects who developed rheumatoid arthritis (RA) and multiple sclerosis (MS) after study enrollment and to compare their dietary habits, collected at baseline, with those of healthy controls. We found a protective effect of oily fish, cheese, breakfast cereals, alcohol, and coffee, and a harmful role of tea consumption with respect of RA risk [2]. On the MS side, alcohol intake and oily fish consumption reduced the disease risk. Our results, obtained on a cohort of unprecedented dimension, are supported by other studies. To evaluate the protective and deleterious effects of MD and WD, pulling apart as dietary patterns, we validated a food frequency questionnaire (MEDOC) which permits, through a double score, to locate subjects on a graduated adherence scale running from the MD to WD, and to appreciate the different shades and complexity of individual dietary habits. On one hand, the associations emerging from UK biobank cohort are encouraging and deserve to be deepened and integrated in future studies; on the other, taking advantage from MEDOC, we aim to broaden our perspective to study complex dietary patterns, with the final goal to build evidence-based guidelines for ADs prevention.

1- Mazzucca, C. B., Raineri, D., Cappellano, G. & Chiocchetti, A. How to Tackle the Relationship between Autoimmune Diseases and Diet: Well Begun Is Half-Done. Nutrients 13, (2021).

2- Mazzucca, C. B., Scotti, L., Cappellano, G., Barone-Adesi, F. & Chiocchetti, A. Nutrition and Rheumatoid Arthritis Onset: A Prospective Analysis Using the UK Biobank. Nutrients 14, (2022).

COD. P111

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10782

Ultra-processed foods consumption and diet quality in breast cancer survivors living in a Mediterranean area: a baseline cross-sectional analysis of DEDiCa trial.

E. Palumbo[1], S. Vitale[1], A. Luongo[1], G. Porciello[1], A. Crispo[1], M. Grimaldi[1], R. Pica[1], D. Serraino[2], T. Guglielmo[3], F. Catalano[4], F. Ferraù[5], F. Messina[6], V. Montesarchio[7], M. De Laurentiis[8], M. Libra[9], E. Celentano[1], L.S.A. Augustin[1]

[1]*Epidemiology and Biostatistics Unit, Istituto Nazionale Tumori, IRCCS Fondazione G. Pascale, Naples, Italy*

[2]*Unit of Cancer Epidemiology, Centro di Riferimento Oncologico di Aviano (CRO) IRCSS, Aviano, Italy*

[3]*Clinica Mediterranea, Naples, Italy*

[4]*Cannizzaro Hospital, Catania, Italy*

[5]*U.O.C. oncologia medica, ospedale San Vincenzo, Taormina, Italy*

[6]*Ospedale Evangelico Betania, Naples, Italy*

[7]*UOC Oncologia, AORN Ospedali dei Colli-Monaldi-Cotugno-CTO, 80131 Napoli, Italy*

[8]*Division of Breast Oncology, National Cancer Institute, Istituto Nazionale Tumori IRCCS "Fondazione Giovanni Pascale", Naples, Italy*

[9]*Department of Biomedical and Biotechnological Sciences, Oncologic, Clinical and General Pathology Section, University of Catania, Catania, Italy*

Background: High ultra-processed food (UPF) consumption has been associated with general worsening of diet quality with consequent adverse health outcomes, including excess weight and cardiometabolic diseases which are related with poor prognosis in women with breast cancer (BC). We investigated the intake of UPFs and its relationship with dietary profiles in BC survivors following a Mediterranean diet. Methods: The study population consisted of 506 women (mean age 52±9 years) with a BC diagnosis (stages I-III) enrolled between 2016 and 2021 in the multicentre lifestyle modification trial DEDiCa conducted in Italy. At baseline food and beverage consumption were classified using 7-day records according to group four of NOVA classification, which includes soft drinks, biscuits, processed meat, commercial sweets and alcoholic beverages. Student t-test was used to compare dietary nutrient intakes above versus below the median UPFs consumption. Results: The average daily energy intake was 1421 kcal, 16.8% of which were from the UPFs. The highest energy contribution was provided by commercial sweets (8.8%). Compared to women with low UPFs intakes, women with UPFs energy intakes above the median (16.1% kcal/day) consumed, on average, more calories (1363 vs.1480 kcal/day, $p<0.05$), total fats (34 vs. 35% kcal/day, $p<0.05$), 27 vs. 32% kcal/total fats ($p<0.05$) of which were from the saturated fatty acids and showed an increase in the glycemic load (98 vs. 108, $p<0.05$), while reductions were observed for dietary fiber (14 vs. 11, g/1000kcal, $p<0.05$), monounsaturated (47 vs. 43% kcal/total fats, $p<0.05$) and polyunsaturated fatty acids (14 vs. 13% kcal/total fats, $p<0.05$), ascorbic acid (104.3 vs. 84.9 mg/day, $p<0.05$), tocopherol (9.6 vs. 8.8 mg/day, $p<0.05$), potassium (2306 vs. 2146 mg/day, $p<0.05$), magnesium (161.8 vs. 139.5 mg/day, $p<0.05$), iron (9.3 vs. 8.4 mg/day, $p<0.05$) and zinc (7.8 vs. 7.4 mg/day, $p<0.05$). Conclusion: Higher UPFs consumption negatively impacted on nutritional dietary profiles and diet quality. It is important to manage the consumption of UPFs to avoid adverse health outcomes, especially in view of the greater cardiovascular risk of BC survivors.

COD. P112

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10783

FAO WORLD FOOD DAY 2022: LEAVE NO ONE BEHIND - WFD Informative and educational campaign

M. Dellepiane [1], A. Galleano[2], M. Caviglia[2], S. Carozzi[3], M.C. Zavattarelli[4], M. Borriello[4,5], D. Erba[6], C. Borgarelli[7,8], L. Pisciotta[7]

[1]*World Trade Center – WTC Azienda speciale Camera di Commercio di Genova*

[2]*Chamber of Commerce of Genoa*

[3]*Centro Ligure per la Produttività - CLP*

[4]*Istituto Professionale per l'Enogastronomia e l'Ospitalità Alberghiera "Marco Polo" - Genoa, Italy*

[5]*SINU-School working group: M. Borriello, S. Alberti, V. Antolini, M. Dellepiane, M. Dello Russo, M. Dinu, D. Erba, N. Giordano, L. Lionetti, D. Martini, M. Oliveri, M. Papa, L. Pisciotta, A. Robino, C. Santoro, F. Scazzina, P. Sabino, F. Sofi*

[6]*University of Milan*

[7]*University of Genova*

[8]*University of Genova GMA working group: Consuelo Borgarelli, Gloria Canepa, Elena Formisano, Elena Marchi, Elisa ProiettiGloria Canepa, Elena Formisano, Elena Marchi, Elisa Proietti*

BACKGROUND: SINU Education, the Chamber of Commerce of Genoa and "Centro Ligure per la Produttività" promoted the informative and educational campaign LEAVE NO ONE BEHIND to contribute to the dissemination of FAO WFD2022.
ACTIONS: The "Blu WFD" campaign addresses four lines of action: On-line training course on sustainable food service for Genova Liguria Gourmet restaurateurs and producer Event for FAO "WFD Genova in Blu" celebration Training conference for the Academic world, Ligurian Entrepreneurs, Trade Associations, Regional Institutions and the Regional Education System dedicated to the themes of the FAO WFD 2022 campaign in Genoa "No-one Left Behind" communication campaign to promote among students and community the conscious consumption of local products, answering a questionnaire.
MATERIALS & METHODS: SINU education working group has prepared: a personalized program of lessons on needs of the food service world according to the FAO WFD 2022 guidelines postcard with the FAO graphics for WFD messages menus evaluated in terms of nutritional and sustainable principles by the dietitians of the University of Genova Design of: a) three different questionnaires based on the population target age: children, adolescents and adults; b) documents to facilitate communication with the Institutions and to promote the participation of students to the initiative; c) letters for Institutions and flyers for students with QR codes for accessing to the questionnaire "For a greener lifestyle" on the SINU platform. Promotion of the initiative by the Sinu education working group
RESULTS: Creation of an innovative training model recognized by FAO Updating of the sustainable transition pathway of restaurant and producer operators. The data collected used in a completely anonymous manner and the analysis of result will be presented to the participants in a final web-event. Data collected from the questionnaires will be used for a scientific publication.
CONCLUSION: this Project favors a synergistic action for the stakeholders of the nutrition community.The CommunicAction campaign "For a greener lifestyle" disseminates the value of local products strengthing the communities and local environment, reinforcing the city's link to the rural areas.

COD. P113

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10787

Assessment of nutritional status and risk of sarcopenia in cancer patients: data from screening program conducted at Istituto Nazionale Tumori IRCCS Fondazione Pascale in collaboration with the ENPAB

G. Porciello[1], T. Di Lauro[2], A. Luongo[1], A.L. Mozzillo[3], E. Racca[4], A. Piccirillo[5], A. Di Martino[6], L. Abbadessa[6], M. Fontana[6], E. Giardinelli[7], L.A. Laino[7], G. Tagliaferri[7], M. Tranchese[7], E. Nicodemo[7], D. D'Errico[2], E. Coppola[2], S. Coluccia[1], P. Di Gennaro[1], S. Vitale[1], E. Palumbo[1], M. Prete[1], E. Rotondo[1], L.S. Augustin[1], V. Turrà[6], I. Parascandolo[6], T. Stallone[7], E. Celentano[1], S. Pignata[2]

[1]*Epidemiology and Biostatistics Unit, Istituto Nazionale Tumori, IRCCS Fondazione G. Pascale, Naples, Italy*

[2]*Department of Urogynaecological Oncology, Istituto Nazionale Tumori IRCCS Fondazione G.Pascale, Naples, Italy*

[3]*Unit of Melanoma, Cancer Immunotherapy and Innovative Therapy, Istituto Nazionale Tumori IRCCS Fondazione G.Pascale, Naples, Italy*

[4]*Experimental Clinical Abdominal Oncology Unit, Istituto Nazionale Tumori IRCCS Fondazione G. Pascale, Naples, Italy*

[5]*Medical and Experimental Head and Neck Oncology Unit, Istituto Nazionale Tumori IRCCS Fondazione G. Pascale, Naples, Italy*

[6]*Dietology and Artificial Nutrition Unit, Istituto Nazionale Tumori IRCCS Fondazione G. Pascale, Naples, Italy*

[7]*Ente Nazionale di Previdenza e Assistenza a Favore Dei Biologi (ENPAB), Rome, Italy*

Malnutrition is associated with a worse prognosis, bad response to therapies and lower quality of life in cancer patients. Malnutrition can also induce a loss of physical function and lean mass, even in a patients with a high body mass index (BMI). Therefore, an improvement in nutritional status can improve prognosis and quality of life. With establishment of Campania Oncological Network (ROC) and Multidisciplinary Oncological Groups (GOM), different care paths (PDTAs) have been identified, including artificial nutrition. At INT IRCCS Fondazione Pascale in Naples, in collaboration with ENPAB, a nutritional and sarcopenia screening has been started since one year. A nutritional screening questionnaire (NRS 2002) and a sarcopenia screening questionnaire (SARC-F) were administered. Body composition evaluation included measurement of body mass index (BMI), waist and hip circumference and bio-impedance (BIA). Questionnaires about health-related quality of life (HRQoL), physical activity (PA) and Mediterranean Diet adherence (MEDAS) were administered. Summary Score (SumSc) was calculated. Descriptive data are shown. 67.9% of patients received nutritional counselling (32.1% were not available, out of 1248 cases). Of these, females represented 46.0%, males 54.0%. Patients were identified by 18 different GOM: 17.9% melanoma, 15.0% lung, 14.7% prostate, bladder and head-neck 8.5%, breast 7.5%, kidney 5.4%, endometrium 5.0%, all others are <5%. 12.9% of patients showed NRS2002 score ≥3; 16.1% showed SARC-F score ≥4. Mean BMI was 27.7±5.4 kg/m2, mean age was 63.2±13.7, mean waist-hip ratio was 0.95±0.1. About 64% had a BMI greater than 30.0, of which 30.3% were obese. Lower phase angle values (<6°) were present for 34% of patients. Mean MEDAS score was 7.4±2.2 (up to a maximum of 17). Median SumSc was 79.0 (up to 100.0). Almost 70% of patients had poor physical activity. Aside from the risk of malnutrition and sarcopenia, an important data that can be deduced was a high percentage of overweight and poor adherence to healthy diets, as Mediterranean. The evaluation of nutritional status, before surgery and during therapies, provides the indications needed to improve prognosis and quality of life in cancer patients.

COD. P114

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10788

Dietary recommendations for breast cancer survivors: evidence, gaps and the precautionary principle.

A. Filippone[1], A. Polito[8], A. Fabbri[3], F. Scazzina[4], M.C. Bassi[5], S. Panico[6], A. Villarini[7], L. Augustin[2]
[1]*Center for Integrative Oncology, Fondazione Policlinico Universitario A. Gemelli IRCCS, Roma, Italy*
[2]*CREA—Research Centre for Food and Nutrition. Roma, Italy*
[3]*Azienda USL-IRCSS di Reggio Emilia, Public Health Nutrition Unit. Reggio Emilia, Italy*
[4]*Department of Food and Drug, University of Parma. Parma, Italy*
[5]*Medical Library, Azienda USL-IRCCS di Reggio Emilia, Reggio Emilia, Italy*
[6]*AOU Federico II, Napoli, Italy*
[7]*Department of Medicine and Surgery, University of Perugia. Perugia, Italy*
[8]*Epidemiology and Biostatistics Unit, Istituto Nazionale Tumori, IRCCS Fondazione G. Pascale. Naples, Italy*

SINU working group on "NUTRITION IN ONCOLOGY" aims at filling the nutritional gaps in the management of cancer patients including the dietary recommendations for breast cancer (BC) survivors. The increased life-expectancy of BC survivors and the oncologic therapy leads to a higher risk for cardiometabolic diseases. Dietary recommendations therefore should take into considerations the risk and management of major comorbidities such as cardiovascular disease (CVD) and type 2 diabetes (T2D). Dietary recommendations for BC survivors are based on the extrapolation of evidence for BC primary prevention due to insufficient strong evidence in survivors on BC outcomes. Current evidence and official guidelines for BC survivors recommend a healthy plant-based diet, physical activity and avoidance of excess body weight. The World Cancer Research Fund (WCRF) recommendations for BC survivors encourage consumption of a diet rich in 1) whole grains, 2) vegetables, 3) fruit and 4) legumes, while limiting consumption of 5) fast foods and processed foods, 6) red and processed meat, 7) sugar-sweetened drinks, and 8) alcohol. The evidence, considered limited but suggestive, summarized by the WCRF on BC outcomes (i.e. BC recurrence, secondary BC, total and BC-specific mortality) indicates a post-diagnosis protective role of foods containing fibre and those containing soy. However, the recommendations do not consider type of carbohydrates, type of fats, nuts or specific vegetables. Our working group summarized the evidence for these foods and dietary components including low glycemic index carbohydrates, extra virgin olive oil, tree nuts and brassica vegetables, on the mechanism of BC and on CVD and T2D. In this study we summarize the dietary guidelines for BC survivors from the latest publication of the Continuous Update Project (CUP) of World Cancer Research Fund (WCRF) on BC survivorship. These results suggest the potential pros and cons of every exposure that have been considered by the WCRF, highlighting the gaps and need of digging deeper into dietary recommendations. Health professionals may wish to consider advantages and disadvantages of foods also on non-cancer end points such as CVD, diabetes and obesity.

COD. P115

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10820

Multifactorial Microvariability of the Italian Raw Milk Cheese Microbiota and Implication for Current Regulatory Scheme

F. Fontana[1,2], G. Longhi[1], G. Alessandri[1], G.A. Lugli[1], L. Mancabelli[3,4], C. Tarracchini[1], A. Viappiani[2], R. Anzalone[2], M. Ventura[1,4], F. Turroni[1,4], C. Milani[1,4]

[1]*Laboratory of Probiogenomics, Department of Chemistry, Life Sciences, and Environmental Sustainability, University of Parma, Parma, Italy*

[2]*GenProbio srl, Parma, Italy*

[3]*Department of Medicine and Surgery, University of Parma, Parma, Italy*

[4]*Microbiome Research Hub, University of Parma, Parma, Italy*

The Protected Designation of Origin (PDO) quality scheme, which protects indigenous food products based on geographical and biotechnological features, is strictly regulated in Europe.

This study collected 128 raw milk cheese samples from across Italy to investigate the resident microbiome in relation to current PDO specifications. Shotgun metagenomic approaches revealed how the microbial communities are primarily linked to each cheesemaking site and, as a result, to the use of site-specific Natural Whey Cultures (NWCs), which are defined by a multifactorial set of local environmental factors rather than solely by cheese type or geographical origin, as is the case with the current PDO specification.

Furthermore, detailed functional characterization of Cheese Community State Types (CCSTs) and comparative genomics efforts, including metagenomically assembled genomes (MAGs) of the dominant microbial taxa, revealed NWCs-related unique enzymatic profiles influencing the organoleptic properties of produced cheeses and the availability of bioactive compounds to consumers, with potential health implications.

As a result, these findings highlighted the need for a fundamental rethinking of the current PDO designation, with a focus on production site-specific microbial metabolism to understand and ensure the organoleptic features of the PDO-recognized final product.

COD. P116

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10606

A narrative review on use of nutraceuticals as alternative approach against Cadmium-induced kidney damage

H.R. Marini[1], F. Bellone[1], A. Catalano[1], G. Squadrito[1], A. Micali[2], D. Puzzolo[3], J. Freni[3], G. Pallio[1], L. Minutoli[1]

[1]*Department of Clinical and Experimental Medicine, University of Messina, Messina, Italy*

[2]*Department of Human Pathology of Adult and Childhood, University of Messina, Messina, Italy*

[3]*Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, Messina, Italy*

Introduction. Cadmium (Cd) represents a public health risk due to its non-biodegradability and long biological half-life. The main target of Cd is considered the kidney, where it accumulates. Intriguingly, skeleton fragility related to Cd exposure has been demonstrated to be induced both by a direct Cd toxic effect on bone mineralization and by renal failure.

Methods and Discussion. We reviewed recent experimental and clinical data regarding the mechanisms of Cd-induced kidney structural and functional damage and the state of the art about possible therapeutic approaches. The putative pathophysiological mechanisms involved in Cd toxicity, such as oxidative stress, inflammation, apoptosis, hormonal kidney imbalance, through an attracting molecular crosstalk, are all able to induce severe glomerular and tubular damage leading to chronic kidney disease (CKD). Moreover, CKD is associated with the presence of dysbiosis, and the results of recent studies have confirmed the altered composition and functions of the gut microbial communities in CKD.

Conclusions. Overall, as the current literature demonstrates convincing associations between diet, food components, and CKD management, also taking into account that gut microbiota are very sensitive to these biological factors and environmental pollutants, the rational intake of nutraceuticals, particularly abundant in foods typical of Mediterranean-style eating patterns may be a reliable therapeutic strategy against Cd-induced kidney damage and, consequently, could be very useful in the prevention and cure of CKD.

References

Cirmi S. et al. Biomedicines 2021; 9(12):1797.

Rinaldi M. et al. Curr Med Chem. 2017; 24(35):3879-3893.

COD. P117

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10611

The MABEL project: Metabolomics Approach for the assessment of Baby-Mother Enteric microbiota Legacy. A Preliminary Pilot Study

G. Picone[1], B. #oniewska[2], K.S. #ydecka[3], M. Kaczmarczyk[4], I. #oniewski[3,4], A. Trimigno[5]

[1]*Dep. of Agricultural and Food Sciences, University of Bologna, Italy*

[2]*Dep. of Neonatology and Intensive Neonatal Care, Pomeranian Medical University (PMU), Szczecin, Poland*

[3]*Dep. of Biochemical Science, Pomeranian Medical University (PMU), Szczecin, Poland*

[4]*SANPROBI sp. z o.o. sp. K., Szczecin, Poland*

[5]*Chemometrics and Analytical Technology Sec., Dep. of Food Science, University of Copenhagen, Copenhagen, Denmark*

Gut microbiota represents the microbe population living in our intestine, playing key roles in several metabolic, nutritional, physiological, and immunological processes. After birth, is known that the composition of infant gut microbiota derives from both horizontal (method of delivery and environmental conditions) and vertical transmission from mother to child, which is strictly related to how the infant is fed (breastfed or infant formula). Detailed information on the development of the microbiota during pregnancy is lacking, and its acquisition represents a fundamental step in the knowledge of how perinatal and neonatal factors modulate the development of the microbiota in infants. Thus, the focus of the MABEL project is to apply omics methodologies, such as Multivariate Statistical Analysis of High-Resolution Nuclear Magnetic Resonance (HR-NMR) spectra to investigate the notion of vertical transmission of microbiota, by the assessment of samples from stool and meconium extracts. Furthermore, the qualification of NMR-visible molecules in meconium should provide considerable information and should help investigators understand the role of meconium chemical components in normal and pathologic conditions. In the present pilot study, HR-NMR spectroscopy was used to detect components of the water-soluble and organic fractions of meconium from 6 newborns (3 pairs of twins). To assess possible changes in composition during early postnatal life, NMR and multivariate statistical analysis of stool samples taken weekly were also performed.

Funding: This study was partially supported by the Italian Ministry of University and Research MUR—NRRP funding (project number SOE_0000116, funded to G. Picone) (MABEL project).

COD. P118

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10619

Short-chain fatty acids in plasma after the intake of fermentable cereal fibres- An extended postprandial study (FiFerM)

R. Testa[1], G. Costabile[1,2], M. Vitale[1], A. Rivieccio[1], M.S. Palmnäs-Bédard[3], R. Landberg[3], G. Riccardi[1], R. Giacco[4]

[1]*Department of Clinical Medicine and Surgery, Federico II University, Via Sergio Pansini 5, 80131, Naples, Italy.*

[2]*Task Force on Microbiome Studies, Federico II University, Via Sergio Pansini 5, 80131, Naples, Italy.*

[3]*Department of Life Sciences, Chalmers University of Technology, Gothenburg, Sweden*

[4]*CNR- Institute of Food Sciences, Via Roma 64, Avellino, Italy*

Introduction: The beneficial effects of dietary fibre are partly mediated by short-chain fatty acids (SCFA) produced through intestinal bacterial fermentation. However, not all fibres are equally able to stimulate SCFA production and probably each fibre could induce a specific fermentation pattern.

Objective: To depict differences in plasma SCFA profiles after the ingestion of two different fibre sources vs an inert fibre control in individuals at high cardiometabolic risk.

Methods: According to a randomized-controlled cross-over study design, twenty overweight/obese individuals, aged 30-75 years, consumed, at one-week interval, three test products (bread with arabinoxylans (AX), wheat bran puff, and cellulose puff as control) within breakfast meals, providing 11 g of fibre, similar for energy and macronutrient composition. Plasma samples were collected for SCFA analysis at fasting, for 8-hour after the test breakfast, with the same lunch without fermentable fibres consumed at the sixth hour.

Results: Acetate response to test fibres was much greater (about twenty times) than that of propionate and butyrate. Acetate began to increase 4-hours after all three test breakfasts and returned to baseline after 8-hours, with no differences between the test fibres. Propionate and butyrate profiles after the three breakfasts showed a biphasic pattern; they began to increase already after 1-hour and returned to baseline after 6-hours; then a more marked increase was observed lasting until the following morning. The average daily plasma levels of propionate were about 25% higher after AX than after wheat bran puffs; the difference became significant during the 8-hours after breakfast to the next morning ($p<0.05$). Conversely, the average daily levels of butyrate were similar after AX and bran. A significant correlation was observed between butyrate produced after AX and bran ($r=0.627$, $p<0.01$); conversely, there was no correlation between the two test fibres for acetate and propionate.

Conclusions: Arabinoxylan consumption induces a different plasma SCFA pattern than wheat bran, with propionate increase more pronounced after AX, whereas butyrate and acetate have similar daily plasma profiles after the two test fibers.

COD. P119

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10668

Physiological adaptation induced by high fat diet and environmental pollutant dichlorodipheniletylhene (DDE) in rat liver: focus on mitochondrial function and endoplasmic reticulum stress

V. Migliaccio[1], S. Penna[1], I. Di Gregorio[1], A. Lombardi[2], L. Lionetti[1]
[1]*Dip. Chimica e Biologia "Adolfo Zambelli", Univ. Salerno, Fisciano*
[2]*Dip. Biologia, Univ. Federico II, Napoli*

Introduction. Chronic exposure to a high-fat diet (HFD) can induce non-alcoholic steatohepatitis, whereas chronic exposure to environmental pollutants can induce toxicity-associated steatohepatitis. Mitochondrial dysfunction, oxidative stress, and endoplasmic reticulum (ER) stress seem to play a key role in hepatic metabolic diseases. The aim of the present work was to compare the effect of HFD with that of the environmental pollutant dichlorobiphenylethane (DDE), the main metabolite of the insecticide dichlorobiphenylethane (DDT), on mitochondrial function, oxidative stress, and ER stress in rat liver. The effect of simultaneous treatment with both HFD and DDE was also evaluated to assess their possible cumulative effects.
Methods. Four groups of Wistar rats were treated for 4 weeks: ND group, treated with a standard diet (10.6% fats); HFD group, treated with a HFD, rich in lard (40% fats); DDE group, treated with oral administration of DDE (10 mg/Kg b.w.); HFD+DDE group, treated simultaneously with HFD and DDE. Haematoxylin & Eosin stain was used to assess liver morphology; organelles structure was assessed by electronic microscopy. Tissue ROS levels and oxidative damage to lipids were detected spectrofluorimetrically and spectrophotometrically, respectively. Tissue levels of protein markers of mitochondrial dynamics, endoplasmic reticulum (ER)-stress, autophagy, and inflammation were detected by Western blots. Caspase 3 activity and immunostaining were determined as an index of apoptosis.
Results. Oxidative stress and liver damage take place in HFD and in DDE groups. HFD induced lipid deposition, whereas DDE also promoted leucocyte infiltration and inflammation. Both HFD and DDE did not change mitochondrial abundance but increased their fragmentation, in addition they induced ER stress and swelling. Similarly, apoptosis and autophagy were found stimulated. Interestingly, HFD and DDE simultaneous treatment did not present cumulative effects since similar hepatic alterations and organelles dysfunctions were detected between HDF and HFD+DDE.
Conclusions. HFD and DDE elicited pro-oxidant, pro-apoptotic, and pro-inflammatory effects involving mitochondria and ER stress, thus representing a possible link between stressors exposure and hepatic injury.

COD. P120

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10682

Protein hydrolysates as functional ingredients in muffins: starch digestibility and release of bioactive peptides during in vitro digestion

S. Tagliamonte[1], P. Vitaglione[1]

[1]*Dip. di Agraria, Università degli Studi di Napoli "Federico II", Portici (Napoli)*

Consuming meals that provide a better control of postprandial glycaemia may reduce the risk of developing metabolic disease. Muffins are a popular bakery product in Western countries that generally have a medium-to-high glycaemic index (GI). Reformulation of food products is a strategy to improve public health.
This study aimed to evaluate whether the inclusion of protein hydrolysates in muffins affected starch digestibility and the release of bioactive peptides (BAPs) during the digestion.
Eight muffin prototypes were designed and developed by replacing wheat flour with protein hydrolysates from casein, soybean, pea, and rice at two different concentrations so that proteins contributed by 12% (protein source) and 20% (high protein) to the energy value of the product. We applied a simulated gastrointestinal digestion (INFOGEST method) to explore the potential effect on the postprandial glucose response by assessing the GI and the BAPs (by targeted UHPLC-HRMS) released during the digestion in comparison to a conventional muffin (CM).
Results showed that muffins containing pea and rice protein hydrolysates had a GI by 15% and 5% lower than CM and during the digestion released peptides with α-amylase-inhibitory activity. On the other hand, casein containing muffins had a GI higher than CM and released opioid BAPs. The profile of BAPs with antihypertensive, antioxidant, opioid, DPPIV- and α-amylase-inhibitor effects released during the digestion of all prototypes will be shown.
Altogether the results showed that using pea and rice protein hydrolysates as ingredients in muffins leads to products that may reduce post-prandial glucose response affecting starch digestibility; further and multiple effects may be obtained through the release of BAPs during the digestion. In vivo studies are needed to validate the effect of the reformulated products on postprandial glucose response and the physiological relevance of BAPs released upon digestion.

COD. P121

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10723

Eating habits and sleep quality in patients with type 1 diabetes on advanced technologies.

A. Corrado[1], G. Scida[1], M. Vitale[1], B. Caprio[1], G. Costabile[1], E. Annuzzi[2], G. Della Pepa[1], A.A. Rivellese[1], G. Annuzzi[1], L. Bozzetto[1]

[1]*Dip. Medicina Clinica e Chirurgia, Università Federico II, Napoli*

[2]*Dip. Medicina Clinica e Sperimentale, Università di Pisa*

Background and Aims: Sleep disorders are bidirectionally linked with eating behaviors and glucose metabolism and this could be clinically relevant in type 1 diabetes (T1D). We investigated the relationship between dietary habits and sleep quality in T1D.

Methods: According to a cross-sectional design, T1D patients (n=120), both sexes, aged 19-79, using continuous glucose monitoring (CGM), filled-in a 7-day food diary and completed the European Prospective Investigation into Cancer and Nutrition (EPIC) questionnaire on dietary habits and the Pittsburgh Sleep Quality Index (PSQI) questionnaire on sleep quality. Blood glucose values over 6 hours after dinner were registered for one week. Differences in dietary habits and blood glucose between Good and Bad, Long and Short, and Early Sleep Onset and Late Sleep Onset Latency Sleepers were evaluated by unpaired sample t-test.

Results: Bad Sleepers (n=84) were twice as prevalent as Good Sleepers (n=36), and had a significantly higher intake (g) of fat than Good Sleepers, in particular at dinner (30.7±10.7 vs. 24.0±10.5, p= 0.004). Short sleepers had a significantly higher intake (g/1000kcal/die) of coffee and tea (88.7±70.9 vs. 62.0±35.6), alcoholic (46.6±50.4 vs. 28.9±31.5), and carbonated soft beverages (21.0±37.5 vs. 9.3±17.2) ($p<0.05$ for all). Compared with Early Sleep Onset Latency, Late Sleep Onset Latency Sleepers had a significantly higher intake of fat at dinner (41.8±7.4 vs. 38.1±9.1 % total energy, p=0.029). No differences in post-dinner blood glucose were detected between participants with bad or good sleep quality.

Conclusions. Sleep disruption is common in T1D and is associated with unhealthy dietary choices, especially at dinner, independently of post-dinner blood glucose control.

COD. P122

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10758

A perfect lunchbox: health campaign for consumers in norther italy

C. Ferraris[1], W. Martelli[1], E. Mingolla[3], D.M. Bianchi[1], C. Maurella[1], P.C. Durelli[3], E. Fea[2], A. Pezzana[3], L. Decastelli[1]

[1]*Istituto Zooprofilattico Sperimentale del Piemonte Liguria e Valle d'Aosta*

[2]*Università degli Studi di Torino - Dipartimento di Scienze della Sanità Pubblica e Pediatriche*

[3]*ASL Città di Torino - SC Nutrizione Clinica*

Nowadays a lot of people prefer or has the necessity to consume food away from home: according to CIRFOOD Observatory of Good Lunch Break, about half of people interviewed use to eat outside 2 to 3 times per week. Besides, food consumed away from home seems to be associated with overweight/obesity, thus the necessity to increase the adherence to healthy dietary choice especially at the workplace. In this context, the aim of the present study was to evaluate nutritional composition and quality of lunches consumed by workers and university students of Piedmont aged 18 to 50. A questionnaire containing picture of portion sizes was created on Google Drive and disseminated during November 2021. Easy Diet Web 4.3.0 program was used to obtain macronutrient percentages and related kcal of each meal; "Healthy Eating Plate" (HEP) composition was used to assess whether the meals were properly balanced. Basal Metabolic Rate (BMR) was calculated according to Schofield equation and total daily energy expenditure (TDEE) was calculated multiplying BMR by self-reported physical activity level according to SACN. Data analysis was performed using Stata 17.1. A total of 204 respondents completed the online questionnaire (76% women, 39% aged 40-49, 74% ate a homemade packed lunch). Carbohydrates were the main macronutrient of the meals (mean 54.g gr, median 47.5 gr), followed by proteins (mean 23.3 gr, median 23.8 gr) and lipids (mean 23 gr, median 20 gr). Median contribution of macronutrients to energy intake was 43% from carbohydrates, 10.5% carbohydrates from sugar, 38% from fat, 19% from protein. Comparing respondents' meal to the composition of the HEP, it was found that 64% of the respondents did not eat a balanced meal because of the lack of one or more components (especially vegetables). With this work it was possible to obtain a picture of the working meal of a group of people in Piedmont: at the end of the study, respondents received a brochure named "Il baracchino perfetto: la salute a portata di pranzo" - "A perfect lunchbox: Health at your fingertips" describing Mediterranean Diet as a healthy lifestyle, HEP as a guide for obtain balanced lunches and containing a model of weekly menu realized by a Nutritionist to be taken as an example.

Bibliography

Atlante Fotografico delle Porzioni degli Alimenti. Available online: https://www.scottibassani.it/atlante-fotografico-delleporzioni-degli-alimenti/

CIRFOOD'S good lunch break observatory: high level of satisfaction with company catering Available online: https://www.cirfood.com/en/news/cirfood-s-good-lunch-break-observatory-high-level-of-satisfaction-with-company-catering.

Jaworowska A, Rotaru G, Christides T. Nutritional Quality of Lunches Served in South East England Hospital Staff Canteens. Nutrients. 2018 Dec 1;10(12):1843.

Landais E, Miotto-Plessis M, Bene C, d'Hotel EM, Truong MT, Somé JW, O Verger E, Consumption of food away from home in low- and middle-income countries: a systematic scoping review, Nutrition Reviews, 2022; nuac085,

Orfanos P, Naska A, Rodrigues S, Lopes C, Freisling H, Rohrmann S, Sieri S, Elmadfa I, Lachat C, Gedrich K, Boeing H, Katzke V, Turrini A, Tumino R, Ricceri F, Mattiello A, Palli D, Ocké M, Engeset D, Oltarzewski M, Nilsson LM, Key T, Trichopoulou A. Eating at restaurants, at work or at home. Is there a difference? A study among adults of 11 European countries in the context of the HECTOR* project. Eur J Clin Nutr. 2017 Mar;71(3):407-419.

Schofield WN, Schofield C & James WPT (1985): Basal metabolic rate -Review and prediction together with an annotated bibliography of source material. Hum. Nutr. Clin. Nutr. 39C (Suppl. 1): 5±96

Scientific Advisory Committee on Nutrition (SACN). (2011) The Influence of Maternal, Fetal and Child Nutrition on the Development of Chronic Disease in Later Life. London: The Stationery Office. Available from: www.sacn. gov.uk/pdfs/sacn_early_nutrition_final_report_20_6_11

The Nutrition Source", "the Harvard T.H. Chan School of Public Health". Available online: https://www.hsph.harvard.edu/nutritionsource/healthy-eating-plate

COD. P123

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10771

Adherence to the Mediterranean Diet and Its Association with Sustainable Dietary Behaviors, Sociodemographic Factors, and Lifestyle: An Online Survey in Italian and US University Students

C. Franchini[1], B. Biasini [1], G. Sogari [2], G. Andreani[2], R. Wongprawmas[2], I. Dolgopolova[3], M.I. Gómez[4], J. Roosen[5], D. Menozzi [2], C. Mora [2], F. Scazzina[1], A. Rosi [1]

[1]*U.O. Nutrizione Umana; Dip. Scienze degli Alimenti e del Farmaco, Università di Parma, Parma*

[2]*Dip. Scienze degli Alimenti e del Farmaco, Università di Parma, Parma*

[3]*Dep. of Marketing and Supply Chain Management, School of Business and Economics, Maastricht University, Netherland*

[4]*Charles H. Dyson School of Applied Economics and Management, Cornell University, US*

[5]*Marketing and Consumer Research, Technical Universität München, Germany*

The declining trend of the adherence to Mediterranean Diet (MD) and shift toward Western-type dietary patterns involve different age groups across the world, including young generations. University students are particularly involved in this process as university life exposes them to the risk of developing unhealthy dietary behaviors and diet-related chronic diseases in later life. This cross-sectional was aimed to investigate the level of adherence to the MD and its association with sociodemographic and anthropometric variables, and lifestyle-related factors, including the adoption of sustainable dietary behaviors, in two national representative samples of university students (18-24 years) living in Italy (IT) and in the United States (US). The adherence to the MD and sustainability of dietary behaviors were assessed by applying the KIDMED questionnaires and the Sustainable-HEalthy-Diet (SHED) index, respectively. Both instruments provide a total score. In addition, the SHED index includes six sub-scores (i.e., Healthy Eating, Sustainable Eating, Place of Purchase of Fruits and Vegetables, Prepared Meals, Water and Soda). The final samples consisted of 1434 and 1485 Italian and American students, respectively. Most of participants had an average adherence to the MD (IT: 55%; US: 47%). In both populations, meeting physical activity recommendations, having a high SHED index score, mainly consuming plant-based foods, being prone to purchase and eat healthy and sustainable dishes, and regularly attending the university canteen were the most powerful predictors of having a high adherence to the MD. In this connection, a major promotion of the MD as a sustainable dietary pattern may be an effective strategy for its revitalization. Considering the positive influence that university canteen attendance has on students' eating habits, campuses and university dining services represent a unique opportunity to build a supportive environment that educates students about the effects of their actions and fosters human and planetary health.

COD. P124

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10705

Development of gluten-containing and gluten-free crackers based on cereal and legume flours: physicochemical, nutritional, and sensory characteristics

A. Baggio[1], I. Rossi[2], S. Cutroneo[2], T. Tedeschi[2], M. Dall'Asta[3], E. Vittadini[4], N. Pellegrini[1,5]

[1]*Dep. of Agricultural, Food, Environmental, and Animal Sciences, University of Udine, via Sondrio 2/A, Udine, 33100, Italy*

[2]*Food and Drug Dep., University of Parma, Parco Area delle Scienze, 27/A, 43124, Parma, Italy*

[3]*Dep. of Animal Science, Food and Nutrition, Università Cattolica del Sacro Cuore, 29122 Piacenza, Italy*

[4]*School of Biosciences and Veterinary Medicine, University of Camerino, via Gentile III da Varano, 62032 Camerino, MC, Italy*

[5]*Food Quality and Design Group, Wageningen University & Research, P. O. Box 17, 6700 AA Wageningen, the Netherlands*

Snack consumption has remarkably increased in the last few years due to changes in eating behavior. However, snacks, including crackers, are generally characterized by low nutritional quality, especially in gluten-free formulations. Legumes are valuable ingredients to be used to improve snack nutritional value as they are a good source of slowly digestible starch, fiber, and proteins, they have a high satiating capacity and are considered sustainable protein sources.

This study focused on the development of gluten-containing and gluten-free crackers where increasing amounts (0, 25, 50, 75, and 100%) of a legume blend flour (red and yellow lentil, and yellow pea flours) were used to replace cereal flours (wheat or rice). Legume blend was formulated to have a complementary amino acid profile with amino acids present in cereals and a mild beany flavor. Sensorial, physicochemical, and nutritional analyses were carried out to characterize the crackers. Consumers preferred crackers (both gluten-containing and gluten-free) having the legume blend to controls formulated with only cereal flour. Increasing the amount of the legume flour blend, the breaking strength index (hardness) increased in gluten-containing crackers and decreased in gluten-free ones. The increased addition of legume blend flour gradually reduced the total starch content and increased resistant starch, significantly reducing starch digestibility in a similar way in both cracker types. Also protein content increased significantly with increasing the amount of legume blend flour improving the protein quality of the crackers. The fraction of digested proteins increased significantly with increasing the amount of legume blend flour and was higher in gluten-free crackers than in gluten-containing counterparts.

In conclusion, the addition of legume flours is a valid way to improve the nutritional quality of gluten-containing and gluten-free crackers thanks to the increased resistant starch fraction and decreased starch digestibility, without affecting technological properties and even increasing consumer acceptability, especially for the gluten-free formulations.

COD. P125

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10737

Oral processing of apple cultivars at different storage times

A. Baggio[1], C. Dal Mas[1], M. Tagliasco[1], M. Moretton[1], N. Pellegrini[1,2]

[1]*Dep. of Agricultural, Food, Environmental, and Animal Sciences, University of Udine, via Sondrio 2/A, Udine, 33100, Italy*

[2]*Food Quality and Design Group, Wageningen University & Research, P. O. Box 17, 6700 AA Wageningen, the Netherlands*

Apple is one of the most popular fruits in the world thanks to its consumption versatility and wide availability on the market. During storage, apples ripen and undergo modifications, like changes in texture, that could influence oral processing and compound profile (e.g., sugars) possibly affecting, in turn, apple perception.

This study was designed to investigate the oral processing of two apple cultivars, Fuji and Golden, at the time of harvest (t0) and after 120 days of storage (t120).

Twenty-two volunteers were individually video-recorded during the mastication of a defined piece of apple (bite) and, immediately after, they filled in a questionnaire related to apple attributes. Then, they masticated again a piece of apple and the collected boli were analyzed for particle distribution and sugar (glucose, fructose, sucrose) content.

Questionnaires showed that at t0 both cultivars were similarly appreciated while at t120 Golden was more affected by ripening than Fuji. Golden was perceived as sweeter, mealier, less acidic, crispy, firm, and juicy than it was at t0 and compared to Fuji at t120. Accordingly, the oral processing results showed higher rates of chewing and consumption of Golden at t120 than at t0. For both apples, a higher number of particles with a lower area were generated at t120 than at t0 which was associated with a lower number of chews and a shorter eating time. Bolus's analysis displayed that the amount of total sugars released during mastication did not change during storage, notwithstanding Golden was perceived as sweeter at t120 than it was at t0 probably due to the higher amount of fructose released during mastication.

The present results confirmed that apples underwent modifications during storage which were dependent on their cultivar and that these changes affected the mastication behavior. Changes in pectin structure in the cell walls could explain these modifications. Therefore, it would be worthy of determining the hydrolysis degree of pectins.

COD. P126

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10755

Environmental impact of current diets and alternative dietary scenarios worldwide: a systematic review

A. Kalmpourtzidou[1], B. Biasini [1], A. Rosi[1], F. Scazzina[1]

[1]*Dip. di Scienze degli Alimenti e del Farmaco, Università degli Studi di Parma, Parma*

Unhealthy and unsustainable diets with a high content of meat and a low intake of plant-based products are predominant worldwide. Trade-offs between and within health and sustainability dimensions need to be considered since diets that are environmentally sustainable could lack macro- and/or micro-nutrients and result in nutrient deficiencies, while healthy diets could be unsustainable. Under EFSA EU-FORA Programme, a systematic review was conducted following the PRISMA guidelines to analyse the environmental impact of current diets and alternative dietary scenarios worldwide. The literature search was performed on Scopus, Web of Sciences and PubMed. Only original full-length English-written studies quantifying environmental impact indicators and dietary patterns per food group, and conducted on the general adult population from 2000 onwards, were included. Diets were furtherly divided into main diet categories based on their description after data extraction. A total of 120 articles from 41 countries globally were included and 703 diets and dietary scenarios were extracted. Current diets were the most prevalent (42%) followed by dietary scenarios either modelled through optimization (29%) or designed based on literature and/or other modelling methods (29%). Among the environmental indicators, the carbon footprint was the most reported (86% of dietary scenarios), followed by land (36%), total freshwater (22%) blue water (15%) and energy use (14%). Other indicators (e.g., biodiversity loss, eutrophication, etc.) were less analysed (≤10%). The environmental impact and the food consumption of dietary scenarios varied widely in-between them and among continents and continent regions due to methodology heterogeneity of dietary assessment and different definitions of diets and food groups. Specific dietary scenarios performed highly regarding carbon footprint, but low for other environmental impact factors, and vice versa, highlighting the importance of holistically analysing diet impact through multiple environmental indicators. Extensive research on dietary intake and environmental impact in low- and middle-income countries is demanding but necessary to promote evidence-based changes in food choices depending on cultural contexts and feasible food supply.

COD. P127

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10713

The effects of gluten addition and dough moisture content on the textural properties and in vitro starch digestibility of durum wheat bread made with coarse semolina

M. Tagliasco[1], A. Baggio[1], D. Peressini[1], N. Pellegrini[1,2]

[1]*Dep. of Agricultural, Food, Environmental and Animal Sciences, University of Udine, Udine, Italy*

[2]*Food Quality and Design Group, Wageningen University, Wageningen, the Netherlands*

Decreasing the blood glucose response of starchy food and consequentially its glycemic index has been the focus of several research in the last decades. A promising approach to limit the starch accessibility to alpha-amylase in cereals is to preserve the integrity of the cell where the starch is encapsulated. However, this protective effect was lost when coarse semolina, rich in clusters of intact cells, was used to produce bread. It was hypothesized that the long mixing time needed to reach an optimum developed dough increased the cell wall porosity due to the solubilization of their components and in turn the enzyme penetration. Moreover, the use of coarse semolina reduced the cohesiveness of the bread crumb, increasing the disintegration rate during digestion and, in turn, the starch accessibility. Therefore, this study aimed to elucidate the effects of dough mixing time, moisture content, and gluten addition on bread texture and starch digestibility. Six durum wheat bread samples were prepared using only coarse semolina (CS, particle size > 1000 µm) or 20% vital gluten in substitution of CS, 70% of water (optimum water absorption) or 55% (low water absorption), and different mixing times (5 or 45 min). Textural properties were evaluated by a texture profile analysis (TPA) and in vitro digestibility was assessed according to Englyst method1. Gluten-enriched bread samples exhibited better textural properties (lower hardness and higher cohesiveness), lower slowly digestible starch, and higher resistant starch than those produced with only CS. Bread made only with semolina at low hydration was the hardest and had less rapidly digestible starch than samples made with 20% gluten in replacement of CS and a long mixing time, which showed the highest volume and the lowest hardness. In bread with the hardest crumb, starch was less accessible during the first 20 min of digestion than in bread with a porous aerated structure. However, during the further 100 min of digestion, samples with higher cohesiveness preserved their structure better limiting crumb disintegration and consequently starch digestibility. These results demonstrated the pivotal role of textural characteristics on the starch digestibility of bread. 1. Englyst et al., Food Chem. 2018, 245, 1183–1189.

COD. P128

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10637

Dietary and lifestyle habits in patients undergoing colonoscopy: is compliance to Mediterranean Diet comparable to that of the general population?

F. Busin[1], A. Ferronato[2], K.I. Rodriguez-Castro[2], M. Franceschi[2], L. Brozzi[2], L. Cuoco[2], G. Baldassarre[2], F. Sofi[3]

[1]*Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy*

[2]*Digestive Endoscopy Unit, ULSS7 Pedemontana, Santorso (VI), Italy*

[3]*Unit of Clinical Nutrition, Careggi University Hospital, 50134 Florence, Italy*

Background. The Mediterranean Diet (MD) is associated with a reduction in cardiovascular, metabolic and neoplastic disease. In contrast, the consequences of a sedentary lifestyle and an unhealthy diet represent an important burden on health systems. Medi-Lite (ML) is a validated instrument for determining compliance to MD.

Aim. To characterize dietary and lifestyle habits in a Western population undergoing lower endoscopy.

Material and methods. All patients undergoing colonoscopy at an Endoscopy Unit in Northeastern Italy from January to June, 2022, were asked to complete the Physical Activity and the ML questionnaires.

Results. 1112 patients completed questionnaires correctly. Patients were predominantly male (54.5%, p=NS), mean age 62 (range 18-92), and most commonly in the 61-75 age group (p<0.001). Average BMI was 25.6, with 52% being obese or overweight, and 1.8% underweight. While 34,6% deny alcohol consumption, 42.2%, 3.3%, and 19.9% drink 0,1-0,99, 1-2, or ≥3 alcohol units daily, respectively. Cardiovascular (mainly hypertension) and metabolic disease were found in 40.5% and 19.1%, respectively, while other comorbidities were observed in less than 10% of patients. Cardiovascular diseases were more frequent in males (p=0.002) while metabolic and rheumatologic diseases in females (p<0.001). Mean MD score was 8.53 (±2.16), with excessive consumption of meat (94.3%), intermediate consumption of vegetables, legumes, fish, alcohol, while adequate consumption of olive oil was 49.7%. Significantly (p<0,001), compliance to MD was greater in females, alcohol consumption was associated with lower BMI (OR=0.877), vegetable intake in females reduced risk of overweight by 55.7%, higher BMI was associated with cardiovascular disease (OR=2.714), the risk being higher in males and metabolic disease in females only (OR=1.944). Daily physical activity (30-60 minute walking) was reported by 40.6% of patients.

Conclusions. Our population has poor compliance to the MD, is frequently overweight or obese, and has an elevated prevalence of cardiovascular disease. A high BMI score renders prone to cardiovascular disease, while vegetable consumption favors a lower BMI in women. In our opinion, these findings must drive a nutritional and lifestyle approach to our population.

COD. P129

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10614

Ultra-processed food intake modifies the association of body mass index with all-cause mortality: prospective analysis from the Moli-sani Study

M. Bonaccio[1], A. Di Castelnuovo[2], E. Ruggiero[1], S. Costanzo[1], S. Esposito[1], A. Ghulam[3], C. Cerletti[1], M.B. Donati[1], G. De Gaetano[1], L. Iacoviello[4]

[1]*Dipartimento di Epidemiologia e Prevenzione, IRCCS Neuromed, Pozzilli.*
[2]*Mediterranea Cardiocentro, Napoli*
[3]*Università dell'Insubria, Varese.*
[4]*Dipartimento di Epidemiologia e Prevenzione, IRCCS Neuromed e Università dell'Insubria, Varese.*

Background: The WHO defines a healthy body weight range for adults as a body mass index (BMI) between 18.5 and 24.9 kg/m2 on the basis of reduced mortality risk. However, there is still controversy about the optimal level of body weight since several cohorts worldwide provided conflicting results. Also, it is unknown whether the effect on mortality of BMI can be influenced by diet. We tested the hypothesis that consumption of ultra-processed food (UPF) can act as an effect modifier of the association of BMI with all-cause mortality. Methods: Longitudinal analysis on 22,836 women and men (mean age 55±12 y) from the Moli-sani Study (2005-2010) with BMI values ≥18.5 kg/m2. Food intake was assessed by a 188-item food frequency questionnaire. UPF was defined following the NOVA classification, and calculated as the proportion (%) of UPF in the total weight of food eaten (g/d). The Mediterranean Diet Score was used to evaluate participants' diet quality. To test for a non-linear, continuous relationship of BMI with mortality, we used multivariable Cox regression analysis with BMI modelled as restricted cubic splines and used the value of 25 kg/m2 as the reference value. Main analyses were stratified by baseline low or high UPF consumption (i.e. below or above our population sex-specific median of UPF consumption, respectively). Results: Over a median follow-up of 12.2 y, 2,230 all-cause deaths occurred. In the whole population sample, BMI values comprised between 18.5 and 24.9 kg/m2 were associated with higher mortality rate (p-value<0.001; p for non-linearity<0.001) compared to overweight (i.e. 25≤ BMI ≤30 kg/m2). This finding was limited to participants reporting high UPF consumption, whereas among participants reporting low UPF intake, healthy BMI values (i.e. <25 kg/m2) were not associated with mortality (p value for interaction across UPF intake groups=0.017). Conclusions: In this cohort of adult Italians, a healthy body weight as defined by WHO was associated with higher rate of death. Our results suggest that this relationship is restricted to participants consuming high UPF as compared to those with limited UPF in the diet. These findings suggest that the definition of a healthy body weight should be complemented with indications of limiting UPF consumption.

COD. P130

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10680

Milk protein digestion in healthy subjects reporting gastrointestinal discomfort after consuming milk

P. Vitaglione[1], S. Tagliamonte[1], R. Barone Lumaga[1], M. Guerville[2]
[1]*Dip. di Agraria, Università di Napoli "Federico II", Portici (Napoli)*
[2]*Dep. of Nutrition, Lactalis Research & Development, Retiers (France)*

Many healthy people exclude milk from the diet due to milk-related gastrointestinal discomforts (GID) despite not being lactose intolerant. The scientific debate on the milk-induced GID in humans is moving towards some bioactive peptides (BAPs) with opioid activity deriving from the proteolysis of β-casein. However, literature shows discrepancies and studies that clearly demonstrate a causal role of milk protein digestion and GID in healthy people are missing.
This study aimed to explore milk protein digestion in 19 participants with milk-related GID and nonhabitual milk consumers [NHMCs] and 20 participants without GID and habitual milk consumers [HMCs].
After an overnight fast the participants drank 250 mL milk and underwent blood drawings over the next 6h to assess the postprandial responses of 31 milk-derived BAPs, 20 aminoacids and 4 hormones, along the 24h self-reports of GID.
In NHMCs the plasma concentrations of all the BAPs weakly peaked 4 h after milk consumption and returned to baseline within 6 h after milk consumption whereas in HMCs circulating BAPs peaked after 30 min, returned to baseline after 4 h and peaked again 6 h after milk consumption. This finding was coherent with the hormonal response whereas the plasma profiles of the aminoacids did not differ between NHMCs and HMCs. Moreover, considering opioid BAPs, NHMCs showed a higher postprandial relative concentration of opioid agonists vs antagonists over the first hour compared to HMCs; this could explain the higher uncomfortable fullness and the putative slower gastrointestinal transit time experienced by NHMCs.
Altogether the results showed that a less efficient digestion of milk proteins along with a different relative amount of opioid agonists vs antagonists BAPs may explain GID in healthy people after milk consumption.

COD. P131

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10648

Bioelectrical Impedance Analysis for the Assessment of Body Composition in pancreatic head cancer

L. Greco[1], A. Costa [1], L. Tondini [1], F. Marchese[1], M. Markabauoi[1], P. Labanchi [1], A. Ferrara[1], A. Luongo [1], L. Baccaro [1], S. Crobeddu[1], G. Petruzziello[1], C. De Fusco [3], M. Petrosino[1], L. Scalfi[2], R. Bianco[4]

[1]Serv. di Dietetica dell'adulto e dell' anziano - AOU Fac. Medicina e chirurgia Università Federico II Napoli

[2]Dip. di Sanità Pubblica AOU Federico II Napoli

[3]Serv . Cure Palliative - Nad -ASL Napoli 3 Nord

[4]Dipartimento di Medicina Clinica e Chirurgia - Oncologia Azienda Ospedaliera Universitaria Federico II Napoli

Pancreatic cancer is one of the most common malignant tumors of the digestive system, and it is the most fatal cancer. Patients with pancreatic head tumors more easily suffer from malnutrition at the time of diagnosis and approximately 52–88% of pancreatic patients who undergo surgery are identified as having a moderate to severe risk of malnutrition .Malnutrition has been recognized as an important risk factor for clinical outcomes. Thus, it is important to identify patients' nutrition status soon after diagnosis. A nutritional risk screening is usually recommended for hospitalized cancer patients, using the Nutritional Risk Screening 2002 (NRS-2002) score the Subjective Global Assessment (SGA) score , Karnofsky performance status score to assess whether the patient is malnourished. Measurements of body composition as an objective nutritional assessment method have been commonly used in recent years , and bioelectrical impedance analysis (BIA) is widely used to measure body composition and assess the nutritional status of patients due to its advantages of being simple, inexpensive, and noninvasive. This prospective study included 24 participants with pancreatic head cancer . All participants' nutritional status were assessed using nutrition assessment tools and bioelectrical impedance analysis (BIA), respectively. The differences among nutrition status assessment tools impact the identification and interpretation of the nutrition status, thus affecting early intervention in cancer patients. Our study indicates that measurement of body composition when associated with nutrition status could be considered a nutrition assessment tool for pancreatic head cancer patients ,could help us to predict the postoperative complications , and provide important informations regard prognosis and survival average of these patients .

COD. P132

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10650

PERIOPERATIVE NUTRITION IN LIVER TRANSPLANTATION

P. Labanchi [1], L. Greco [1], L. Tondini[1], A. Costa [1], F. Marchese[1], M. Markabaoui[1], A. Ferrara[1], A. Luongo[1], L. Baccaro [1], S. Crobeddu[1], G. Petruzziello[1], C. De Fusco[2], A. Galeota Lanza[3], M. Petrosino[1]

[1]*Servizio Di Dietetica dell' adulto e dell'anziano - Azienda Ospedaliera Universitaria Facoltà Medicina e Chirurgia Federico II Napoli*

[2]*Serv. Cure Palliative - Nad ASL Napoli 3 Nord*

[3]*UOC Epatologia, Dipartimento Trapianti di fegato , AORN A.Cardarelli , Napoli*

The liver is the largest and most crucial metabolic organ, playing a central role in integrating several biochemical pathways of carbohydrate, fat, protein, and vitamin metabolism as well as the transport of lipids and the secretion and excretion of bile, all of which are processes involved in muscle and protein metabolism and central for well-nourished status . Malnutrition may further increase morbidity, mortality and costs in the pre and post-transplantation setting. Protein-energy malnourishment is commonly encountered in patients with end-stage liver disease who undergo liver transplantation. PEM can significantly increase the operative risk at the time of surgery and is a risk factor for morbidity, short- and long-term mortality in patients undergoing LT and decreased graft survival after LT. A patient's nutritional status can worsen rapidly in the immediate postoperative period due to perioperative malnutrition, surgical stress, immunosuppressive therapy, post-interventional complications, postoperative protein catabolism. This suggests the need for perioperative nutritional support with liver-adapted formulas containing additional carbohydrates, fat and proteins especially branched-chain amino acids (BCAAs) . It is essential to provide sufficient nutritional support during all phases of liver transplantation. Herein, the latest currently employed perioperative nutritional interventions in liver transplant recipients are thoroughly illustrated including nutrients, micronutrients, branched-chain amino acid supplementation, immunonutrition formulas, fluid and electrolyte balance, nocturnal meals, dietary counselling, exercise and rehabilitation .

COD. P133

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10698

Adherence to the Mediterranean diet, habits and knowledge on food sustainability: results from “8th Edition of the National Day of Professional Biologist”

M.C. Dore[1], T. Stallone [1], S. Capurso [1], U. Scognamiglio[2], I. Savini [3]

[1]*Ente Nazionale di Previdenza e Assistenza Biologi – E.N.P.A.B*

[2]*Council for Agricultural Research and Economics-Research Centre for Food and Nutrition, 00178 Rome, Italy*

[3]*Department of Experimental Medicine, University of Rome “Tor Vergata”, 00133 Rome, Italy*

Background: Numerous studies have shown that the Mediterranean Diet (MD) is a healthy dietary pattern with remarkable beneficial effects on health. The aim of this work is to evaluate adherence to the MD and Habits and Knowledge on food sustainability (HK-food sustainability) to plan future preventive actions, according to the healthcare model One Health. To this end, during the 8th Edition of the National Day of Professional Biologist, organized by ENPAB with the collaboration of the Italian Society of Human Nutrition, a collection of data on the participants to the event has been planned.

Methods: The survey was carried out in 16 Italian cities, data analysis was performed on 1.923 subjects (from 11 to >75 years) who completed the digital questionnaire (1.119 females and 804 males). Adherence to the MD was assesed trough the validated Medi-Lite questionnaire, final score varies from 0 (low adherence) to 18 (high adherence). HK-food sustainability was evaluated trough 7 questions, final arbitrary score varies from 1 (bad habits/knowledge) to 40 (good habits/knowledge).

Results: The mean Medi-Lite score in our population was 9.15±2.32. In the whole population, higher Medi-Lite score was observed in older people (9.39±2.43; >75 years) compared to younger people (8.83±2.56; 11-17 years), in those with a university degree (9.40±2.27) compared to subjects with a primary or a secondary school degree (8.93±2.53) and in physically active people compared to sedentary people (9.43±2.34 vs 8.98±2.36). The mean HK-food sustainability score was 14.51±6.28 with a higher mean value in northern Italy than in southern Italy (17.55±7.14 vs 14.31±6.51). Interestingly, the HK-food sustainability scores had a similar trend to those of Medi-Lite with higher score in people with a higher level of education (16.94±6.76 university degree vs 12.49±6.31 primary or a secondary school degree) and in physically active people compared to sedentary people (16.61±6.64 vs 14.59±6.77). Furthermore, females seemed to have better habits and knowledge on food sustainability than males (17.49±6.81 vs 15.87±6,54).

Conclusion: This study shows that a low level of education and a sedentary lifestyle are associated with low adherence to the MD and poor knowledge in the field of food sustainability.

COD. P134

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10653

The hepatoprotective effect of licorice: a systematic review with meta-analysis

I. Giangrandi[1], M. Dinu[1], G. Pagliai[1], S. Lotti[1], M. Tristan Asensi[1], A. Napoletano[1], B. Colombini[1], V. Maggini[2], E. Gallo[2], F. Firenzuoli[2], F. Sofi[1]

[1]*Department of Experimental and Clinical Medicine, University of Florence, 50134 Florence, Italy*

[2]*2 Research and Innovation Center for Phytotherapy and Integrated Medicine Referring Center for Phytotherapy, Tuscany Region, Careggi University Hospital, Florence, Italy;*

[3]*3Unit of Clinical Nutrition, Careggi University Hospital, Florence, Italy*

Background: Licorice has been commonly used in traditional Chinese and Japanese medicine for the treatment of many different pathological conditions for over two thousand years. The purpose of this systematic review with meta-analysis is to appraise the hepatoprotective effect of licorice root in all the form used worldwide, with or without other medical herbs, in all kinds of acute and chronic hepatopathy including cirrhosis and liver cancer

Methods: All relevant papers were selected in agreement with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement through computerized research in the principal electronic databases: Medline, Scopus, Embase from the beginning to the date of 12 April 2022. Humans and English language restriction were applied as filters

Results: Our research yielded a total of 2,198 unique citations from the main electronic databases. After review for title, abstract, and excluding duplicate and paper written in other languages but English, we identified 66 full texts as potentially relevant for the analysis. Of these, 44 were excluded after full-text reviews. As a result, a total of 22 articles were finally included, of which 16 randomized controlled trials (RCTs). The results obtained in the RCTS showed a statistically significant ameliorations of all three major parameters under study: AST, ALT and γGT after intervention with licorice. Indeed, it was found a significant reduction after intervention with licorice, [Mean difference (MD) = -11.25; 95%CI:-18.42 ; -4.08 UI/L) with low level of heterogeneity, (I2 40%; P=0.10) for ALT; a statistically significant difference (MD = -23.57; 95% CI: -37.33; -9.81 UI/L) for γGT with an estimated low heterogeneity (I2 20%; P=0.29) and a remarkable significance (MD = -23.57; 95% CI: -37.33; -9.81) for AST with however a statistically significant heterogeneity (I2 94%; P<0.001)

Conclusions: This systematic review with meta-analysis allowed to show that licorice can have beneficial effects on parameters of liver damage in randomized clinical trials. Further studies with large numbers of subjects are needed to better elucidate the impact of licorice use as an adjunctive therapy to traditional therapy, especially for Caucasian populations

COD. P135

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10747

The project YouGoody: a web-based prospective cohort on diet, lifestyle, and prevention of chronic-degenerative disease

C. Agnoli[1], A. Oliverio[1], V. Pala[1], G. Gargano[1], C. Roncallo[1], S. Sieri[1]

[1]*Struttura Complessa di Epidemiologia e Prevenzione, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano*

In the last decades, mounting evidence has accumulated indicating that modifiable lifestyle factors such as diet, physical activity, adiposity, and smoking habits have an important role in the development of chronic diseases, in particular type II diabetes, cardiovascular disease, and some cancers. These pathologies have large social and economic costs, and place huge pressure on overstretched health and social services.

New studies are mandatory because in the last years people's habits strongly changed, also in terms of diet. Widespread use of internet is an opportunity to collect huge amounts of data from a large sample of volunteers and identify the emerging healthy/unhealthy lifestyle and dietary habits.

YouGoody aims to establish a web-based prospective cohort using pre-existing channels (large retail customers), with the objective of identifying unhealthy nutritional and lifestyle behaviors associated with chronic disease risk that can be addressed in future prevention programs.

The study was launched at the end of February, 2023 through a press release by Fondazione IRCCS Istituto Nazionale dei Tumori of Milan (INT) in collaboration with large retail. Recruitment started through large retail communication channels (newsletter, website, printed materials in the stores). Additional dissemination strategies will include posting and leaflets in INT, advertisement on INT website and social networks, and newspaper advertisement. Using a dedicated web site, recruitment will be carried out for 2 years with the goal of enrolling 100,000 volunteers aged ≥18. At baseline, participants will be administered questionnaires on socio-demographic characteristics, anthropometry, diet, smoking, alcohol consumption, physical activity, reproductive variables (women only), and health status. Information collected at baseline will be updated every 2 years. To keep participants engaged, they will be sent written and video contents on foods, physical activity, recipes etc.

With YouGoody, it will be possible to identify actual indicators of a healthy lifestyle, effective in reducing the risk of developing chronic diseases and inspired by people's real habits. This is fundamental for further refining nutritional recommendations aimed at improving the health status of populations.

COD. P136

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10740

Opuntia Ficus Indica Fruit Is Able To Modulate Human Motor Cortical Excitability And Plasticity

D. Di Majo[1], G. Gambino[1], M. Allegra[2], P. Burko[1], F. Brighina[1], M. Marrale[3], C. Gagliardo[1], G. Ferraro[1], P. Sardo[1], G. Giglia[1]

[1]*Department of Biomedicine, Neuroscience and Advanced Diagnostics (BIND), University of Palermo*

[2]*Department of Biological, Chemical and Pharmaceutical Sciences and Technologies, University of Palermo*

[3]*Department of Physics and Chemistry "Emilio Segrè", University of Palermo*

Indicaxanthin (IX) is a pigment contained in the orange-red fruits of Opuntia Ficus Indica. This phytochemical plays an anti-inflammatory, anti-oxidant and neuromodulator role, overcoming the blood-brain barrier, as proved in rats1. We evaluated the neuro-active role of 400g, orally assumed, cactus pear fruits, exploring cortical excitability and plasticity in the primary motor cortex. To this aim, we applied Non Invasive Brain Stimulation and Neuromodulation (NIBS and NIN) protocols, through paired-pulse transcranial magnetic stimulation (ppTMS) and anodal transcranial direct current stimulation (a-tDCS) on 20 healthy volunteers. Updated safety guidelines, inclusion criteria and operating instructions were rigidly applied2. Our procedure consisted of administration of 30 randomized pulses by ppTMS on the M1, before and after 20 minutes of a-tDCS3. The subjects were tested in baseline condition and 90' after intake of orange-red fruits (IX Group) or white fruits devoid of IX (Placebo Group). A small subgroup (N=6) also underwent functional connectivity analysis through resting state functional MRI (rs-fMRI). Our data showed an increase on the excitatory intracortical circuits in the IX group. We also found out that a-tDCS induced elevated network activity of glutamatergic intracortical circuits, can homeostatically be restored to baseline levels by IX. No significant differences were found on rs-fMRI. Our results suggest that oral intake of IX increases cortical excitability and leads to homeostatic responses on motor cortical plasticity.

References: 1. Gambino, G. et al. Brain Distribution and Modulation of Neuronal Excitability by Indicaxanthin From Administered at Nutritionally-Relevant Amounts. Front. Aging Neurosci. 10, 133 (2018).2. Rossi, S. et al. Safety and recommendations for TMS use in healthy subjects and patient populations, with updates on training, ethical and regulatory issues: Expert Guidelines. Clin. Neurophysiol. 132, 269–306 (2021).3. Brighina, F. et al. Modulation of pain perception by transcranial magnetic stimulation of left prefrontal cortex. J. Headache Pain 12, 185–191 (2011).

COD. P137

XLIII CONGRESSO NAZIONALE SINU

Stato: INVIATO - ID: 10666

Systematic review of Mindful Eating protocols for the treatment of food-related diseases

P. Iaccarino Idelson[1], P. Strazzullo[1]

[1]*Dipartimento di Medicina Clinica e Chirurgia, Università degli studi di Napoli Federico II*

Background: Mindful Eating (ME) is having growing scientific recognition for treating food related diseases because it helps to recognize the stimuli of hunger and satiety and to minimize the use of food as psychological compensation. Aim of this work is to describe the different mindful eating protocols adopted in the clinical trials included in a systematic review.
Methods: The selection of literature was conducted in accordance with the Cochrane Handbook of Systematic Reviews on Intervention and the PRISMA guidelines. The search strategy, without restrictions, included the following terms: “mindful eating” OR “mindfulness” AND “eating” OR “eating behavior”. Three electronic databases (MEDLINE/Pubmed, Embase and Cochrane Central Register of controlled trials) for the literature search were used, including articles published until April 15, 2023.
Results: Seventeen studies, published between 2009 and 2022, were included in the systematic review. The sample size ranged from 10 to 284, the target population was given by overweight/obese, diabetic patients, and patients affected by eating disorders.
Five protocols have been described, ranging from 6 to 16 individual or group sessions, based on meditation, conscious eating exercises, training on the recognition of satiety, satisfaction, physical and emotional hunger and the assignment of home practices. The efficacy of the various protocols has been measured by the use of five different instruments (mainly questionnaires).
Conclusions: No significant differences were detected among the different ME protocols in terms of efficacy and all of them were as effective as other traditional interventions regarding clinical outcomes, but in many cases ME was significantly more effective on indirect factors such as anxiety towards food and diets, which may lead to the improvement of clinical outcomes on a longer period.