

CO1: ONE-CARBON METABOLISM BIOMARKERS AND COGNITIVE DECLINE IN THE VERY OLD: THE NEWCASTLE 85+ STUDY

Nuno Mendonça^{1,4}; **Antoneta Granic**^{2,5,6}; **John C Mathers**^{2,4}; **Carmen Martin-Ruiz**²; **Keith A Wesnes**^{8,10}; **Chris J Seal**^{1,3,4}; **Carol Jagger**^{2,7}; **Tom R Hill**^{1,4}

¹ School of Agriculture Food and Rural Development

² Institute for Ageing of Newcastle University

³ Human Nutrition Research Centre

⁴ Institute of Cellular Medicine of Newcastle University

⁵ Institute of Neuroscience

⁶ NIHR Newcastle Biomedical Research Centre in Ageing

⁷ Institute of Health and Society

⁸ Wesnes Cognition Ltd

⁹ Department of Psychology of Northumbria University

¹⁰ Medical School of University of Exeter

INTRODUCTION: Although the biological rationale for the association between folate, vitamin B12 and homocysteine with cognitive function seems plausible, conflicting results have been reported.

OBJECTIVES: This study aimed to determine the associations between one-carbon (1-C) metabolism biomarkers (folate, vitamin B12 and homocysteine), and cognitive impairment at baseline and the rate of cognitive decline over 5 years in the very old.

METHODOLOGY: The Newcastle 85+ Study was a prospective longitudinal study of 765 participants initially aged 85 years. Global cognition was measured by the Standardized Mini-mental State Examination (SMMSE) at baseline, and at 3 and 5 years of follow-up and, attention-specific cognition with the Cognitive Drug Research (CDR) System at baseline, and at 1.5 and 3 years of follow-up. Baseline red blood cell folate (RBC folate), plasma vitamin B12 and total homocysteine (tHcy) concentrations were determined by immunoassay. Linear mixed models were used to estimate the associations between quartiles of 1-C metabolism biomarkers and cognition over 3 (CDR) and 5 years (SMMSE).

RESULTS: Compared to participants in the lowest quartile of RBC folate concentrations (<612 nmol/L), those in the highest quartile of RBC folate concentrations (>1280 nmol/L) had 1 more point on the SMMSE at baseline ($\beta=+1.02$, $SE=0.43$, $p=0.02$). Those in quartile 4 of tHcy (>21.4 $\mu\text{mol/L}$) had 1 point less in the SMMSE at baseline than those in the lowest quartile (<13.5 $\mu\text{mol/L}$) ($\beta=-1.05$, $SE=0.46$, $p=0.02$). Plasma vitamin B12 was not predictive of global or attention-specific cognition at baseline and at follow-up. None of the 1-C metabolism biomarkers except tHcy was associated with the rate of decline in attention scores over 3 years.

CONCLUSIONS: RBC folate and tHcy but not plasma vitamin B12 were associated with better global cognition in the very old at baseline but were not predictive of rate of decline over 5 years.

CO2. NUTRITIONAL STATUS AMONG PORTUGUESE NURSING HOMES RESIDENTS: PREVALENCE

AND PSYCHOSOCIAL ASSOCIATED VARIABLES (PEN-3S STUDY)

Teresa Madeira^{1,3}; **Catarina Peixoto-Plácido**^{1,3}; **Nuno Santos**^{1,3}; **Osvaldo Santos**^{1,3}; **Violeta Alarcão**^{1,3}; **Paulo Nicola**^{1,3}; **Beatriz Goulão**^{1,4}; **Nuno Mendonça**^{1,5}; **Astrid Bergland**⁶; **Asta Bye**⁶; **Teresa Amaral**⁷; **Carla Lopes**^{8,9}; **João Gorjão Clara**^{1,3}

¹ Faculdade de Medicina da Universidade de Lisboa

² Instituto de Saúde Ambiental da Faculdade de Medicina da Universidade de Lisboa

³ Instituto de Medicina Preventiva e Saúde Pública da Faculdade de Medicina da Universidade de Lisboa

⁴ Institute of Preventive Medicine of University of Aberdeen

⁵ Institute for Ageing of Newcastle University

⁶ Oslo and Akershus University College of Applied Sciences

⁷ Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

⁸ Instituto de Saúde Pública da Universidade do Porto

⁹ Faculdade de Medicina da Universidade do Porto

INTRODUCTION: Large epidemiological international studies identify malnutrition as a common problem in older adults with negative health outcomes, including decreased quality of life, medical complications, hospitalization and higher mortality. In Portugal, nationally representative data about nutritional status in older adults living in nursing homes is missing.

OBJECTIVES: (a) To assess nutritional status among the Portuguese population aged 65 and over living in nursing homes and (b) To identify variables associated with nutritional status.

METHODOLOGY: This nationally representative cross-sectional study collected data through face-to-face structured interviews and anthropometric measurements performed by trained nutritionists. All older adults from randomly selected nursing homes, without severe dementia and not bedridden, were invited to participate. Nutritional status was assessed by the full Mini Nutritional Assessment (MNA[®]), depression with the Geriatric Depression Scale 15, instrumental activities (functionality) with the Lawton Scale and loneliness through the UCLA Loneliness Scale.

RESULTS: Overall, 1186 nursing homes residents (mean age 83.4 \pm 7.1 years; 27.2% men) voluntarily enrolled in this study (participation rate=93%). Mean BMI was 27.5 Kg/m² (95% CI: 27.0-27.8 Kg/m²), and 34.7% (95% CI: 30.6-39.1%) had a BMI over 30 Kg/m². According to the MNA, 4.8% (95% CI: 3.2-7.3%) were classified as malnourished and 38.7% (95% CI: 33.5-44.2%) were at risk of malnutrition. These percentages were significantly higher for women than men ($p<0.001$). Logistic regression models showed that lower functionality and depression were associated with risk of malnutrition (OR= 5.55 and 3.56 respectively, $R^2= 0.22$ $p<0.001$).

CONCLUSIONS: The estimated prevalence of malnutrition and risk of malnutrition, as well as the associated variables stress out the need for defining and implementing public health policies for nursing homes focused on individuals' autonomy and mental health promotion, together with adequate nutritional support and monitoring.

CO3. ESTIMATIVA DE SUB- E SOBRE-DECLARAÇÃO DA INGESTÃO ENERGÉTICA TOTAL: PREVALÊNCIA E DETERMINANTES – IAN-AF 2015-2016

Vânia Magalhães¹; **Milton Severo**^{1,2}; **Duarte PM Torres**³; **Carla Lopes**^{1,2}

¹ Unidade de Investigação em Epidemiologia do Instituto de Saúde Pública da Universidade do Porto

² Departamento de Ciências da Saúde Pública e Forenses e Educação Médica da Faculdade de Medicina da Universidade do Porto

³ Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

INTRODUÇÃO: O Inquérito Alimentar Nacional e de Atividade Física (IAN-AF) 2015-2016 avaliou o consumo alimentar da população portuguesa. A identificação de declarações incorretas dos alimentos consumidos (incluindo a sub- e a sobre-declaração) é um aspeto relevante na avaliação fidedigna dos resultados. Sabe-se que a informação reportada pelo indivíduo pode ser afetada pelas suas características pessoais.

OBJETIVOS: Avaliar a prevalência de sub- e sobre-declaração da ingestão energética e os seus determinantes.

METODOLOGIA: Foram analisados neste estudo dados de participantes do IAN-AF 2015-2016, com idades entre 18 e 84 anos (n=3386). A informação do consumo alimentar foi recolhida através de dois questionários às 24 horas anteriores e a de atividade física através do *International Physical Activity Questionnaire*. Obtiveram-se medidas objetivas de peso e altura. Os indivíduos foram classificados como tendo declarações plausíveis, sub- ou sobre-declarações de acordo com o método descrito por Goldberg e corrigido por Black, que considera o metabolismo basal e o nível da atividade física, para estimar o intervalo de estimativa de ingestão energética plausível para cada indivíduo.

RESULTADOS: A prevalência de sub- e sobre-declaração da energia ingerida foi de 21,3% e 4,2%, respetivamente. Verificou-se maior prevalência de sub-declaração nos indivíduos do sexo feminino vs. sexo masculino (21,9% vs. 20,6%, p=0,003), nos indivíduos obesos vs. não obesos (35,2% vs. 16,4%, p<0,001), nos indivíduos com escolaridade inferior ao nível secundário vs. mais escolarizados (25,7% vs. 16,6%, p<0,001) e nos indivíduos com autopercepção do estado de saúde menos favorável (muito fraco/fraco) vs. mais favorável (34,6% vs. 20,0% p<0,001). Não se verificaram diferenças significativas por idade.

CONCLUSÕES: Os indivíduos do sexo feminino, os obesos, os menos escolarizados e os que percecionam o seu estado de saúde como menos favorável apresentam uma prevalência de subdeclaração da ingestão energética superior.

CO4. SITTING TIME AMONG PORTUGUESE OLDER ADULTS: ASSOCIATION WITH ANTHROPOMETRIC AND FUNCTIONAL PARAMETERS

Ana S Sousa¹; Rita S Guerra¹; Luísa Álvares¹; Rui Valdivieso¹; Cláudia Afonso¹; Patrícia Padrão¹; Pedro Moreira¹; Alejandro Santos¹; Nuno Borges¹; Graça Ferro²; Cátia Martins²; Teresa F Amaral¹

¹ Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

² Serviço de Nutrição e Alimentação da Unidade Local de Saúde do Alto Minho

³ Obesity Research Group, Department of Cancer Research and Molecular Medicine of Norwegian University of Science and Technology

INTRODUCTION: A high sitting time has been consistently associated with negative outcomes such as disability, frailty and mortality in older adults. Moreover, it has been regarded as a potentially modifiable factor in the prevention of chronic diseases. However, there is lack of information on the association of sitting time with anthropometric and functional indicators among older adults.

OBJECTIVES: To explore the association of anthropometric and functional indicators with sitting time among Portuguese older adults.

METHODOLOGY: A cross-sectional study was conducted. From a sample of 1500 Portuguese older adults (≥65 years) 1423 participants were eligible to the present analysis. Sitting time, in minutes, was self-reported recurring to the International Physical Activity Questionnaire. BMI (obesity: ≥30 kg/m²), abdominal obesity (waist circumference >88 cm for women; >102 cm for men), time to walk 4.6 m (slow time: >7 seconds or >6 seconds according to sex and height) and handgrip strength (low: <20 kgf for women and <30 kgf for men) were assessed. Multivariable linear regression models were conducted. β coefficients and 95% confidence intervals (95%CI) were calculated for each parameter, after adjusting for potential confounders.

RESULTS: The present sample was composed in 57.4% by women. Age ranged from 65 to 100 years and median (IQR) age was 74 (11) years. Higher sitting

time was independently associated with low handgrip strength ($\beta=0.11$; 95% CI: 0.06-0.16), slow time to walk 4.6 m ($\beta=0.25$; 95%CI:0.20-0.31), obesity ($\beta=0.08$; 95%CI:0.03-0.13) and abdominal obesity ($\beta=0.11$; 95%CI:0.06-0.16).

CONCLUSIONS: Obesity, abdominal obesity, slow time to walk and low handgrip strength are positively associated with sitting time. Slow time to walk presented the strongest association. These results emphasize that functional and anthropometric parameters are potential indicators of sedentary behaviour among older adults.

ACKNOWLEDGEMENTS: The present project was granted by the Public Health Initiatives Programme (PT06), financed by EEA Grants Financial Mechanism 2009-2014.

CO5. ASSOCIATION OF SELF-EVALUATION OF HEALTH STATUS WITH UNDERNUTRITION STATUS AND RISK IN OLDER ADULTS

Rita S Guerra¹; Ana S Sousa¹; Rui Valdivieso¹; Luísa Álvares¹; Alejandro Santos¹; Nuno Borges¹; Patrícia Padrão¹; Pedro Moreira¹; Cláudia Afonso¹; Cátia Martins²; Graça Ferro²; Teresa F Amaral¹

¹ Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

² Serviço de Nutrição e Alimentação da Unidade Local de Saúde do Alto Minho

³ Obesity Research Group, Department of Cancer Research and Molecular Medicine of Norwegian University of Science and Technology

INTRODUCTION: With aging, prevalence of undernutrition increases and health status worsens. The association of self-evaluation of health status with undernutrition among older adults remains to be studied.

OBJECTIVES: To explore the association of self-reported health status with undernutrition in Portuguese older adults.

METHODOLOGY: A cross-sectional study was conducted in Portuguese subjects ≥65 years old, representative of Portuguese older adults regarding sex, age, educational level and regional area. Each participant reported health status as very good, good, fair, bad or very bad. Participants' undernutrition status was assessed with Mini Nutritional Assessment[®] – Short Form. A multinomial multivariable logistic regression model was conducted to evaluate the association between undernutrition status and self evaluation of health status (dependent variable), with adjustment for sex, age, education and marital status. Odds Ratios (OR) and respective 95% Confidence Intervals (95%CI) were calculated.

RESULTS: The present sample included 1495 participants, of which 868 were women (58.1%), median (IQR) age was of 74 (11) years (age range: 65-100 years); 240 (16.1%) participants were at undernutrition risk or undernourished; 731 (48.9%) evaluated their health status as fair and 285 (19.1%) as bad or very bad. Being nutritionally-at-risk or undernourished was not associated with self-evaluation of health status as fair (OR=1.31, 95% CI=0.99; 1.03). However, these conditions increased the odds of self evaluation of health status as bad or very bad (OR=3.48; 95% CI=2.34; 5.18).

CONCLUSIONS: Undernutrition risk and undernutrition increased the odds of self evaluation of health status as bad very bad in older adults. This association draws attention to the possibility that improving undernutrition status can ameliorate self evaluation of health status and thus to contribute to older adults' well-being.

ACKNOWLEDGEMENTS: The present project was granted by the Public Health Initiatives Programme (PT06), financed by EEA Grants Financial Mechanism 2009-2014.

CO6. DEVELOPMENT AND CHARACTERIZATION OF TUNA PÂTE USING TUNA FISH GELATINE

Teresa Carvalho¹; Sérgio C Sousa¹; Ricardo I Pérez-Martín²; Xosé A Vázquez²; Ana P Carvalho¹; Ana M Gomes¹

¹ CBQF - Centro de Biotecnologia e Química Fina – Laboratório Associado da Escola Superior de Biotecnologia da Universidade Católica Portuguesa

²IIM-CSIC - Grupo de Bioquímica de Alimentos, Instituto de Investigaciones Mariñas

³REVAL - IIM-CSIC - Grupo de Reciclado y Valorización de Materiales Residuales (REVAL), Instituto de Investigaciones Mariñas

⁴REQUIMTE LAQV do Instituto Superior de Engenharia do Instituto Politécnico do Porto

INTRODUCTION: Tuna gelatine is a by-product of the fishery industry which can be a helpful agent to improve texture and composition of tuna pâtés. Its stabilizing and jellifying properties enable the production of natural and simple pâtés, reducing the number of auxiliary ingredients. Furthermore, such pâtés are aligned with current consumer trends who search for more natural, sustainable and healthier products.

OBJECTIVES: To develop and characterize a more natural tuna pâté produced with tuna gelatine.

METHODOLOGY: Lab extracted tuna fish gelatine was tested as an alternative ingredient to oil in the formulation of tuna pâté. The reference sample contained water-canned tuna:oil:gelatine in the 60:20:20 weight proportions (g/100 g), respectively. Experimental samples were prepared by replacing part of oil by gelatine, according to the following oil:gelatine combinations: 15:25, 10:30 and 5:35 (g/100 g). Prepared pâtés were stored in thermally-treated glass bottles and stored for 28 days at room temperature. Physical (texture and colour) and chemical (protein, fat, pH, water activity and dry weight) properties of developed pâtés were assayed. Tests of sensory acceptance and attributes were performed on formulation A (15:25), selected for its most stable physico-chemical properties.

RESULTS: Compared to the reference formulation, increased addition of gelatine gave lighter and firmer pâtés with a good immiscibility (no water drainage was visible throughout storage). Too firm and dry pâtés may not be accepted by consumers. Addition of tuna gelatine slightly enriched pâté with protein, although not significantly ($p>0.05$), fat content decreased according to increased gelatine replacement (highest for reference pâté and lowest for 30 or 35% (w/w) tuna gelatine content). Little differences were found between pâtés in pH, but higher gelatine content provided higher water activity. Sensory acceptance averaged a score above 5.93 confidence interval (CI) 95% [5.71-6.62] indicating product acceptability.

CONCLUSIONS: Our study suggests that tuna gelatine has good potential to be used in partial fat replacement in tuna pâté production and may constitute a sustainable, value-added product.

CO7. IODINE STATUS AND IODISED SALT CONSUMPTION IN PORTUGUESE SCHOOL-AGED CHILDREN: THE IOGENERATION STUDY

João Costa Leite^{1,2}; Elisa Keating^{1,2}; Diogo Pestana^{1,3}; Virgínia Cruz Fernandes^{1,2,4}; Maria Luz Maia^{1,2}; Sónia Norberto^{1,2}; Edgar Pinto⁵; André Moreira-Rosário^{1,2,6}; Diana Sintra¹; Bárbara Moreira¹; Ana Costa¹; Sofia Silva¹; Vera Costa¹; Inês Martins¹; Francisca de Castro Mendes¹; Pedro Queirós¹; Bruno Peixoto^{1,7}; José Carlos Caldas^{1,7}; António Guerra^{1,8,9}; Manuel Fontoura^{1,8,10}; Sandra Leal^{1,7,11}; Roxana Moreira⁷; Irene Palmares Carvalho^{1,12}; Rui Matias Lima¹³; Cátia Martins¹⁴; Cristina Delerue-Matos⁵; Agostinho Almeida⁴; Luís Azevedo^{1,6}; Conceição Calhau^{1,3}

¹ CINTESIS - Center for Health Technology and Services Research

² Department of Biomedicine - Biochemistry Unit, Faculty of Medicine of the University of Porto

³ Nutrition & Metabolism, NOVA Medical School, Faculdade de Ciências Médicas da Universidade Nova de Lisboa

⁴ REQUIMTE LAQV do Instituto Superior de Engenharia do Instituto Politécnico do Porto

⁵ REQUIMTE LAQV of the Department of Chemical Sciences, Faculty of Pharmacy of University of Porto

⁶ Department of Community Medicine, Information and Health Decision Sciences (MEDCIDS), Faculty of Medicine of University of Porto

⁷ CESPU, Institute of Research and Advanced Training in Health Sciences and Technologies

⁸ Division of Paediatric Nutrition, Department of Paediatrics, Integrated Paediatric Hospital, Centro Hospitalar São João

⁹ Faculty of Medicine of University of Porto

¹⁰ Division of Paediatric Endocrinology, Department of Paediatrics, Integrated Paediatric Hospital, Centro Hospitalar São João

¹¹ Department of Anatomy, Faculty of Medicine of University of Porto

¹² Department of Clinical Neurosciences and Mental Health, Faculty of Medicine of University of Porto

¹³ Directorate-General of Education

¹⁴ Obesity Research Group, Department of Cancer Research and Molecular Medicine, Faculty of Medicine of Norwegian University of Science and Technology

Iodine is a key micronutrient for the synthesis of thyroid hormones, which are essential for a healthy growth, particularly for normal neurological development. The elimination of iodine deficiency among vulnerable populations including school-aged children is regarded as a major public health challenge. The World Health Organization promotes salt iodisation to control iodine deficiency. In Portugal, the use of iodised salt in school canteens is mandatory since 2013 but no surveillance program was implemented.

The present study aimed to evaluate iodine status in school-aged children and monitor the usage of iodised salt in school canteens and households. A total of 2018 participants were randomly selected to participate in a cross-sectional survey using a multi-stage complex sampling method from 3 regions of northern Portugal. Children's urine and salt samples from households and school canteens were collected. Urinary iodine concentration (UIC) was measured by inductively coupled plasma-mass spectrometry.

Although median UIC (129 µg/l) indicates adequacy of iodine status, 32% of the population was below 100 µg/l whereas 5% had excessive UIC. No school canteen (n=83) implemented the iodized salt policy and only 2% of the households were using iodized salt. Limited consumption of milk, but not fish, was associated with a higher risk of iodine deficiency. In particular, the group of children that consumed less than one glass of milk a day (23% of the population) were iodine deficient. Although the present study indicates that the UIC in school-aged children is within adequacy levels, one third of the population may be at risk of iodine deficiency. While milk consumption is an important determinant of iodine status, iodised salt usage in Portugal remains far from reaching the international guidelines. Whether iodine deficiency control policies are implemented in the country, we stress the need for a monitoring program and regulations aligned with the commitment of reducing population salt intake for an effective public health intervention.

ACKNOWLEDGEMENTS: The authors would like to thank to all children, parents, teachers and schools who participated and contributed to the survey. The project was granted by the Public Health Initiatives Programme (PT06), financed by EEA Grants Financial Mechanism 2009-2014 and supported by FEDER through the operation POCI-01-0145-FEDER-007746 funded by the Programa Operacional Competitividade e Internacionalização – COMPETE2020 and by National Funds through FCT - Fundação para a Ciência e a Tecnologia within CINTESIS, R&D Unit (reference UID/IC/4255/2013). Diogo Pestana and Virgínia Cruz are currently funded by Fundação para Ciência e Tecnologia (SFRH/BPD/109158/2015 and SFRH/BPD/109153/2015, respectively).

CO8. PREVALÊNCIA E DETERMINANTES DA OBESIDADE, GORDURA ABDOMINAL E RISCO CARDIOVASCULAR NUMA AMOSTRA REPRESENTATIVA DE IDOSOS PORTUGUESES

Joana Algarinho^{1,2}; Cláudia Afonso^{2,3}; Rui Poínhos²; Bela Franchini^{2,3}; Sílvia Pinhão^{2,4}; Flora Correia^{2,4}; Maria Daniel Vaz de Almeida^{2,3}; Bruno MPM Oliveira^{2,5}

¹ Faculdade de Ciências da Universidade do Porto

² Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

³ Sociedade Portuguesa de Ciências da Nutrição e Alimentação

⁴ Centro Hospitalar de São João

⁵ LIAAD – INESC TEC

INTRODUÇÃO: A obesidade, caracterizada por excessiva gordura corporal, também se observa nos idosos.

OBJETIVOS: Analisar nos idosos portugueses a associação entre obesidade e determinantes associados.

METODOLOGIA: Estudo epidemiológico observacional de desenho transversal que incluiu uma amostra representativa de 972 indivíduos com idade ≥ 60 anos, das sete regiões NUTS II de Portugal. Avaliaram-se dados sociodemográficos, antropométricos, de estilo de vida e de estado de saúde auto-reportado. A prevalência da obesidade avaliou-se pelo Índice de Massa Corporal (IMC) ≥ 30 kg/m². Estudaram-se o perímetro da cintura (PC) e a razão cintura altura (PC/altura), por estarem associadas à adiposidade abdominal e, consequentemente ao risco cardiovascular (PC acima dos valores da Organização Mundial da Saúde) e cardiometabólico, (PC/altura $\geq 0,5$).

RESULTADOS: A prevalência de obesidade foi 16,2% nos homens e 19,5% nas mulheres. Nos homens, as médias de IMC foram superiores nos ex-fumadores e não reformados. Nas mulheres, apresentavam maior IMC as residentes nos Açores, com menor escolaridade, problemas de mobilidade, pior estado de saúde e nas mais novas. A PC/altura elevada foi mais comum nos homens (76,1% vs. 49,5%). Nos homens, as médias de PC/altura foram superiores nos habitantes do Norte e ex-fumadores. Nas mulheres, moradoras no Alentejo, com menor escolaridade, não fumadoras e com problemas de dor/mal-estar e mobilidade. O risco cardiovascular aumentado foi mais comum nas mulheres (30,7% vs. 16,2%). Nos homens, as médias de PC foram superiores nos que pertenciam a agregados familiares mais numerosos, nos ex-fumadores e com melhor estado de saúde. Nas mulheres, médias superiores de PC foram encontradas nas mulheres do Alentejo e regiões autónomas, casadas e com dor/mal-estar.

CONCLUSÕES: As medidas antropométricas de obesidade estão associadas aos dados sociodemográficos, de estilo de vida e de estado de saúde-autoreportado. Este trabalho pode auxiliar o delinear de estratégias de intervenção para incentivar a população idosa a ter um estilo de vida mais saudável, em particular, com maior consumo de alimentos saudáveis.

CO9. NUTRITIONAL ASSESSMENT OF PATIENTS ALLOCATED TO PALLIATIVE CARE

Alice Lopes¹; Mariana Fraga¹; Fernando Pichel¹; Teresa Amaral²

¹ Serviço de Nutrição e Alimentação do Centro Hospitalar do Porto

² Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

INTRODUCTION: Handgrip strength (HGS) has been shown to be associated with changes in the functional ability in several chronic disease conditions. However, it is unknown if similar associations exist between HGS and undernutrition in palliative care patients.

OBJECTIVES: To determine the ability of HGS and of the adductor pollicis muscle thickness (APMT) to identify undernutrition in palliative care inpatients.

METHODOLOGY: A cross-sectional study was conducted among patients in palliative care, at Centro Hospitalar do Porto. Undernutrition was identified by Patient-Generated Subjective Global Assessment (PG-SGA) Portuguese version. The HGS and the adductor pollicis muscle thickness (APMT) were assessed and compared to reference values in order to predict undernutrition according to PG-SGA results. Sensitivity, specificity and positive and negative predictive values were calculated.

RESULTS: The study sample was composed of 51 inpatients (44-78 years old, 56.9% males). According to PG-SGA scored, 54.9% patients were severely undernourished, 35.3% moderated undernourished or at risk of undernutrition and 9.8% not undernourished.

The percent of weight loss was [median (interquartile range)] 11.6 (61.6)% in severely undernourished patients, 4.8 (32.4)% in patients at risk of undernutrition and 0 (0.0)% in not undernourished patients, $p=0.002$. A weight loss $\geq 10\%$ was found in 60.7% of severely undernourished patients which can be related to eating disorders (80.4%, $p<0.001$) and no appetite (49%, $p=0.003$).

To identify undernutrition in palliative care patients, HGS results showed high sensitivity (96.4%) and high positive predictive value (93.1%). APMT measurement showed equal results (96.4% of sensitivity and 93.1% of positive predictive value). To identify the risk of undernutrition, the APMT measurement denoted the highest sensitivity (94.4%) and the highest positive predictive value (89.5%).

CONCLUSIONS: Undernutrition occurs frequently among the palliative care inpatients. The HGS and the APMT identify a high proportion of undernourished patients and are simple and useful tools to identify undernourished patients.

CO10. FRUIT AND VEGETABLE CONSUMPTION IN MOZAMBIQUE

Cecília Boaventura^{1,3}; Patrícia Padrão^{2,4}; Albertino Damasceno^{1,5}; Nuno Lunet^{1,2}

¹ Departamento de Ciências da Saúde Pública e Forenses e Educação Médica da Faculdade de Medicina da Universidade do Porto

² EPIUnit - Instituto de Saúde Pública da Universidade do Porto

³ Faculdade de Ciências de Saúde da Universidade Lúrio

⁴ Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

⁵ Faculdade de Medicina da Universidade Eduardo Mondlane

INTRODUCTION: Fruit and vegetable are important for the prevention of noncommunicable diseases and various nutritional deficiencies. The World Health Organization (WHO) Stepwise Approach to Chronic Disease Risk Factor Surveillance (STEPS) conducted in Mozambique in 2005, showed that only 4.2% of the adults aged 25-64 years met the WHO recommendations of at least five servings of fruit and vegetables per day.

OBJECTIVES: To describe fruit and vegetable consumption in Mozambique, in 2014/2015, according to socio-demographic data.

METHODOLOGY: A cross-sectional evaluation of a representative sample ($n=3277$) of the Mozambican population aged 15 to 64 years was conducted following the STEPS approach, which included an assessment of usual fruit and vegetable consumption (frequency and quantity). Crude prevalence and age-, education- and family income-adjusted prevalence ratios (PR) with 95% confidence intervals (CI) were computed.

RESULTS: The prevalence of daily intake of at least five servings of fruit and vegetables was 10.3% (95% CI 8.1, 12.5) and 10.2% (95%CI: 7.6-12.7) of the Mozambicans aged 15-64 years and 25-64 years, respectively. A higher consumption was reported by the rural population (48.8% vs. 35.3% among women; 42.2% vs. 34.0% among men). There was a trend towards an increased vegetable consumption (at least two servings per day) with increasing age in urban area (55-64 years vs. 15-24, women: PR = 2.56, 95% IC 1.01, 6.46; men: PR = 7.26, 95% IC 1.71, 30.71). No other statistically significant associations between fruit and vegetable consumption and sociodemographic characteristics were found.

CONCLUSIONS: Although there was an increase in fruit and vegetable consumption in the last decade, only one in every ten participants met the WHO recommendations. Public policies including incentives in the production, disposal and promotion of fruit and vegetable consumption are needed.

CO11. MARINE GELATINE AS A SUBSTITUTE FOR FAT AND CORNSTARCH IN TUNA PÂTÉ

Teresa Carvalho¹; Sérgio C Sousa¹; Ricardo I Pérez-Martín²; Xosé A Vásquez³; Ana P Carvalho⁴; Ana M Gomes¹

¹CBQF - Centro de Biotecnologia e Química Fina – Laboratório Associado, Escola Superior de Biotecnologia da Universidade Católica Portuguesa

²IIM-CSIC - Grupo de Bioquímica de Alimentos de Instituto de Investigaciones Mariñas

³REVAL - IIM-CSIC - Grupo de Reciclado y Valorización de Materiales Residuales (REVAL) de Instituto de Investigaciones Mariñas

⁴REQUIMTE LAQV do Instituto Superior de Engenharia do Instituto Politécnico do Porto

INTRODUCTION: The fish processing industry produces a large quantity of waste, including fish skins which are a source of gelatine, an ingredient that may be used successfully in different food industry applications, such as fat replacer, emulsifier or stabilizer. An interesting application may be the incorporation of fish gelatines in industrial tuna pâtés to meet with specific nutritional and organoleptic requirements. In general, tuna pâtés contain additives to improve taste, shelf-life and texture.

OBJECTIVES: Formulation, production and characterization of a sustainable tuna pâté, through the incorporation of tuna gelatine as a replacer for fat and cornstarch, the latter used for its stabilizing functions.

METHODOLOGY: Tuna pâté control contained 60:20:20% (w/w) of water-canned tuna:cornstarch:oil. Four experimental samples were studied where gelatine replaced 50% cornstarch (sample A 60:10:20:10) or 50% cornstarch and increased oil percentual content (sample B 60:10:15:15; sample C 60:10:10:20 and sample D 60:10:5:25% (w/w) for tuna:cornstarch:oil:gelatin respectively). Final pâtés were evaluated at 0 and 28 days storage, in duplicate, for total protein (Kjeldhal method), total fat (Folch method), pH, water activity and dry weight (DW). Firmness was measured by texture analysis and the most stable formulation (sample D) was tested for sensory attributes. Microbiological stability was monitored.

RESULTS: Protein content did not vary significantly ($p>0.05$) between samples with different added gelatine concentrations. Lower fat contents were noted among tuna pâtés B-D containing $\geq 15\%$ gelatine. Regarding pH, aW and DW statistical differences ($p<0.05$) were found mainly among samples C and D, in which pH and DW values were lower. Microbiological quality was maintained at required legal levels throughout 28 days storage. Firmness increased among samples with higher gelatine contents (samples C and D) and sensory analysis (taste, texture, flavour) averaged an overall score of 5.57 CI 95% [5.13-5.99], indicating good acceptability.

CONCLUSIONS: Tuna gelatine, a by-product of fishery industries, revealed a promising impact, as a partial fat and cornstarch replacer, for manufacturing of reduced fat tuna pâtés.

CO12. THE BENEFIT OF A DIETARY SUPPLEMENT WITH MELATONIN ON REDOX STATUS AND MUSCLE DAMAGE IN RESISTANCE TRAINED ATHLETES

Roberto Leonardo-Mendonça^{1,2}; Darío Acuña-Castroviejo¹

¹ Departamento de Nutrição da Universidade Atlântica

² Instituto de Biotecnología, Centro de Investigación Biomédica, Parque Tecnológico de Ciencias de la Salud de Universidad de Granada

³ Departamento de Fisiología, Facultad de Medicina de Universidad de Granada

INTRODUCTION: Melatonin is a neurohormone involved in the regulation of circadian rhythms, with potent antioxidant activity. It is mainly used as a dietary supplement for sleep regulation and re-synchronization of disrupted circadian rhythms.

OBJECTIVES: Previous data showed that the administration of high doses of melatonin improved the circadian system in athletes. Here, we investigated in the same experimental paradigm whether the antioxidant properties of melatonin have also beneficial effects against exercise-induced oxidative stress and muscle damage in athletes.

METHODOLOGY: Twenty-four athletes were treated with 100 mg.day⁻¹ of melatonin or placebo 30 min before bedtime during four weeks in a randomized

double-blind scheme. Exercise intensity was higher during the study than before starting it. Blood samples were collected before and after treatment, and plasma was used for oxygen radical absorption capacity (ORAC), lipid peroxidation (LPO), nitrite plus nitrate (NOx), and advanced oxidation protein products (AOPP) determinations. Glutathione (GSH), glutathione disulphide (GSSG) levels, and glutathione peroxidase (GPx) and reductase (GRd) activities, were measured in erythrocytes.

RESULTS: Melatonin intake increased ORAC, reduced LPO and NOx levels, and prevented the increase of AOPP, compared to placebo group. Melatonin was also more efficient than placebo in reducing GSSG.GSH-1 and GPx.GRd-1 ratios. Melatonin, but not placebo, reduced creatine kinase, lactate dehydrogenase, creatinine, and total cholesterol levels.

CONCLUSIONS: Overall, the data reflect a beneficial effect of melatonin treatment in resistance-training athletes, preventing extra- and intracellular oxidative stress induced by exercise, and yielding further skeletal muscle protection against exercise-induced oxidative damage.

CO13. AMEA TEENS: A COMPREHENSIVE APPROACH TO PROMOTE HEALTHY LIFESTYLES IN PORTUGUESE ADOLESCENTS

Ana Rito^{1,2}; Mariana Pinho Santos²; Marta Crespo²; Catarina Afonso²

¹Instituto Nacional de Saúde Doutor Ricardo Jorge

²Centro de Estudos e Investigação em Dinâmicas Sociais e Saúde

INTRODUCTION AND OBJECTIVES: The prevalence of overweight and obesity has been increasing consistently throughout the World Health Organization European Region. Thus, childhood obesity prevention and treatment should be a top priority. For this, action should be taken at both macro and micro levels and in different settings such as home and families, communities and schools. Based on the rationale that local governments exert an important and decisive role in counteracting childhood obesity, AMEA TEENS program - promotion of healthy lifestyles - was developed in Portugal, within the framework of the EU project: OPEN.

METHODOLOGY: 75 low-income families with adolescents (aged 12–18 years) from 5 portuguese municipalities (Águeda, Figueira da Foz, Odivelas, Oeiras and Paredes) were identified.

The multi-component program (AMEA-teens) consisted of two level intervention, (community and individual) delivered in different settings. Individual level included (1) At Home – 4 individual nutritional counselling sessions; (2) SMART Choices at the supermarket; and at community level (3) a Healthy Cooking workshops, (4) a School activity: “Mega Class Zumba” and (5) a Facebook challenge. Waist circumference, Body Mass Index (BMI), physical activity level, sedentary behaviours, hours of sleep and nutrition knowledge and attitudes were also assessed at baseline and after 10 months. During individual sessions, diet was registered using 24h recalls.

RESULTS: The first nutritional evaluation showed 51.6% (28.1% obesity and 23.4% pre-obesity) of overweight and 1.6% of severe thinness among the adolescents. Overall 67% of the adolescents improved their nutritional status, with a decrease of 1.6% in the overweight prevalence. Adolescents showed reductions in mean waist circumference (-0.7 cm) and in BMI/A (-0.06 z-score). Nutrition and Physical activity patterns showed that daily breakfast consumption increased 2.1% as well as intake of fruit (+0.5/day), vegetables (+5.5%/>1/day), fish (+7.7%/>2-3/week), whole meal cereals (+19.5%/>5/week), water (+25.1%/≥1.5l/day) and olive oil (+1.4%). The consumption of “fast food” and “HFSS foods & soft drinks” decreased 1.5%/week and 2.7%/day, respectively. Physical activity increased 3.6 hours per week and hours of sleep also improved 40 minutes per week.

CONCLUSIONS: These findings suggested that AMEA TEENS is a promising intervention programme in adolescents and in low-income families, at municipality level.

CO14. WEIGHT LOSS AND ITS MAINTENANCE FOR TYPE 2 DIABETES PREVENTION – THE PREVIEW STUDY

Marta P Silvestre¹; Pia Christensen²; Sally D Poppitt¹; Amy Liu¹; Mikael Fogelholm³; Margriet Westerterp Plantenga⁴; Ian Macdonald⁵; J Alfredo Martinez⁶; Svetoslav Handjiev⁷; Jennie Brand Miller⁸; Wolfgang Schlicht⁹; Arne Astrup²; Kirsi Pietiläinen²; Mathijs Drummen¹; Moira Taylor⁵; Santiago Navas Carretero⁶; Teodora Handjiev Darlenska⁷; Shannon Brodie⁸; Julia Thurn⁹; Thomas Larsen²; Anne Raben²

¹ University of Auckland

² University of Copenhagen

³ University of Helsinki

⁴ Maastricht University

⁵ University of Nottingham Medical School

⁶ University of Navarra

⁷ Medical University of Sofia

⁸ University of Sydney

⁹ University of Stuttgart

INTRODUCTION: Overweight and obesity are risk factors for type-2 diabetes (T2D) but an effective lifestyle modification strategy to prevent weight gain and, consequently, T2D is yet to be identified.

OBJECTIVES: PREVIEW - PREvention of diabetes through lifestyle intervention and population studies in Europe and Worldwide- is a large scale program, recruiting overweight and obese adults and children known to be at high risk of developing T2D, taking place in 11 countries worldwide. The intervention aims to determine whether a higher protein lower glycaemic index (GI) diet is more effective for weight loss maintenance and diabetes prevention than a moderate protein, moderate GI diet. PREVIEW will also investigate the additional effect of moderate vs. high intensity exercise in T2D prevention.

METHODOLOGY: 2,326 overweight (Body Mass Index (BMI) ≥ 25.0 kg/m²) adults and children were recruited. Participants completed an 8 week weight loss program using a low calorie diet (LCD, 4MJ/d), and those who achieved $\geq 8\%$ weight loss were enrolled in a long-term (3 year) weight loss maintenance program to completed in 2018. Diets are ad libitum. Intensive dietary and exercise counselling takes place in groups of 8-12 individuals. Biological samples are collected for assessment of markers of T2D and cardiovascular disease (CVD). The primary endpoint is the incidence of T2D at 3 years, based on a 75 g oral glucose tolerance test (OGTT).

RESULTS: 1,842 participants (67% women) completed the weight loss phase successfully. At baseline, mean (\pm SD) age was 51.6 ± 11.6 years, BMI 35.3 ± 6.5 kg/m². Participants lost 10.6 ± 4.0 kg during the LCD, with men losing more absolute weight than women ($P < 0.001$). HbA1c decreased by 2.2 ± 0.09 mmol/mol in men, and by 1.8 ± 0.06 mmol/mol in women ($P < 0.001$).

CONCLUSIONS: 8 weeks of LCD intervention resulted in a marked decrease in body weight and decreased the risk of T2D among pre-diabetic individuals. Significantly larger decreases were seen in men versus women.

FUNDING: Health and Research Council of New Zealand, grant number 14-191; EU FP7, grant agreement 312057; NHMRC - EU Collaborative Grant, AUS; NZ Health Research Council (14/191), UoA Faculty Research Development Fund; The Cambridge Weight Plan has kindly donated all LCD products.

CO15. ANTHOCYANINS: FROM THE GUT TO THE BRAIN

Cláudia Marques^{1,3}; Iva Fernandes⁴; Manuela Meireles²; Ana Faria^{1,4}; Nuno Mateus¹; Conceição Calhau^{1,2}

¹ Nutrição e Metabolismo, NOVA Medical School, Faculdade de Ciências Médicas da Universidade Nova de Lisboa

² ProNutri - Clinical Nutrition & Disease Programming, CINTESIS - Center for Research in Health Technologies and Information Systems

³ Department of Biomedicine, Faculty of Medicine of University of Porto

⁴ REQUIMTE LAQV of the Department of Chemistry and Biochemistry of Faculty of Sciences of University of Porto

INTRODUCTION: Anthocyanins, a particular class of flavonoids found in red wine and berries, are able to control neuroinflammation in high-fat diet-induced obesity Rat models. On the other hand, anthocyanins are subjected to gut microbiota metabolism and may modulate bacterial growth.

OBJECTIVES: Our goal was to test the hypotheses: 1- anthocyanins modulate gut microbiota composition and counteract HF-diet induced dysbiosis; 2- changes in gut microbial environment, including microbial metabolites, are responsible for the anti-neuroinflammatory properties of anthocyanins.

METHODOLOGY: Wistar rats were randomly divided into 4 groups (n=6 per group): (C) standard diet; (C+BE) standard diet + blackberry anthocyanins rich-extract; (HF) high-fat diet; (HF+BE) high-fat diet + blackberry anthocyanins rich-extract (BE). BE was supplied daily in food (25 mg/kg body weight). After 17 weeks, the animals' gut microbiota composition was evaluated by sequencing 16S rRNA gene. Fecal metabolome was analyzed by LC-DAD/ESI-MS. These outcomes were then correlated with the neuroinflammatory markers previously measured in the hippocampus of these animals.

RESULTS: BE counteracted some of the features of HF-diet induced dysbiosis. Pseudoflavonifractor and Sporobacter (bacterial genus increased by BE in C and HF diets, respectively) were negatively correlated with thymus chemokine-1 (TCK-1), a potent chemoattractant which expression is decreased in the hippocampus of animals supplemented with BE. In addition, BE stimulated the bacterial catabolism of tryptophan leading to the production of aryl hydrogen receptor agonists (indoxyl-3-sulphate), possible responsible for the effects of BE on neuroinflammation.

CONCLUSIONS: Our results demonstrate that anthocyanins may counteract the HF diet-induced neuroinflammation through gut microbiota modulation, thereby acting on the bilateral communication between gut and brain.

ACKNOWLEDGMENTS: This work was supported by FCT (Fundação para a Ciência e Tecnologia) (POCI, FEDER, Programa Comunitário de Apoio): SFRH/BD/93073/2013; SFRH/BPD/72652/2010 and UID/QUI/50006/2013.

CO16. PREVALENCE AND ASSOCIATED FACTORS OF METABOLICALLY HEALTHY OVERWEIGHT IN YOUNG ADULTS

Joana Araújo¹; Elisabete Ramos^{1,2}

¹ EPIUnit – Instituto de Saúde Pública da Universidade do Porto

² Departamento de Ciências da Saúde Pública e Forenses e Educação Médica da Faculdade de Medicina da Universidade do Porto

INTRODUCTION: Metabolically healthy obesity or overweight is a phenotype of obese/overweight individuals without metabolic abnormalities, but its mechanisms are not well understood yet.

OBJECTIVES: To estimate the prevalence of metabolically healthy overweight (MHOW) and its associated factors in Portuguese young adults.

METHODOLOGY: Participants of the EPITeen study (Porto, Portugal) evaluated at 21 years of age and with valid data were included (n=1640). Metabolically healthy status was considered when participants did not present any of the following risk factors: high blood pressure (systolic > 130 mmHg and/or diastolic > 85 mmHg), high fasting glucose (> 110 mg/dL), high triglycerides (> 150 mg/dL), and low levels of high-density lipoprotein-cholesterol (< 50 mg/dL in females or < 40 mg/dL in males). Overweight was defined as Body Mass Index (BMI) ≥ 25.0 kg/m². Participants were classified in 4 categories according to BMI

and metabolically healthy status: metabolically healthy normal weight (MHNW), metabolically unhealthy normal weight (MUNW), metabolically healthy overweight (MHOW) and metabolically unhealthy overweight (MUOW). The association of sociodemographic and lifestyle factors with MHOW was estimated through multinomial logistic regression models (OR; 95% CI).

RESULTS: There were 259 (15.8%) MHOW participants, 137 (8.4%) MUOW and 231 (14.1%) MUNW. After adjusting for sex, education, tobacco smoking, dieting and total energy intake, participants having breakfast more frequently (4-7 days/week: OR=1.76; 1.04-2.96) and those more physically active in their leisure time (OR=1.92; 1.05-3.52) were more likely to be MHOW, in comparison to MUOW. Females, those highly educated and reporting no dieting behavior presented an increased odds of MHNW and MUNW, but were not associated with occurrence of MHOW, in comparison to MUOW.

CONCLUSIONS: Sixty five percent of the overweight participants were metabolically healthy. Lifestyle factors may contribute to the preservation of a healthy metabolism even in individuals with unhealthy body weight.

CO17. ASSOCIAÇÃO ENTRE NUTRIENTES COM POTENCIAL PRO E ANTI-INFLAMATÓRIO E NÍVEIS DE PROTEÍNA C - REATIVA DE ALTA SENSIBILIDADE EM JOVENS ADULTOS

Maria Cabral¹; Joana Araújo¹; Carla Lopes^{1,2}; Elisabete Ramos^{1,2}

¹EPIUnit – Instituto de Saúde Pública da Universidade do Porto

²Departamento de Ciências da Saúde Pública e Forenses e Educação Médica da Faculdade de Medicina da Universidade do Porto

INTRODUÇÃO: É crescente o interesse sobre o potencial papel da alimentação como fator modulador da inflamação subclínica crónica.

OBJETIVOS: Avaliar a associação entre a ingestão de vitaminas e gorduras, e concentrações de proteína C-reativa de alta sensibilidade em jovens adultos.

METODOLOGIA: No âmbito da coorte EPITeen, foram incluídos 1587 participantes avaliados aos 21 anos de idade. A ingestão alimentar foi avaliada através de um questionário de frequência alimentar (QFA) e foi realizada a medição sérica de proteína C reativa de alta sensibilidade (PCR-as) após colheita em jejum. Os nutrientes (energia; vitaminas A,C, D e E; gordura total; ácidos gordos saturados, monosaturados, polinsaturados, ómega 3 e ómega 6) foram ajustados para a ingestão energética total pelo método dos resíduos descrito por Willet e foi aplicada a transformação logarítmica para a PCR-as (log PCR-as). Através de modelos de regressão linear foram estimadas as associações [coeficientes de regressão (β) e respetivos intervalos de confiança a 95% (IC 95%)] entre os diferentes nutrientes e log PCR-as.

RESULTADOS: Após ajuste para ingestão energética total, sexo e Índice de Massa Corporal, embora tendencialmente negativo, não se encontrou efeito estatisticamente significativo entre a energia e PCR-as, assim como para as vitaminas C,D, E e PCR-as. Relativamente aos diferentes tipos de gordura, somente se encontrou efeito estatisticamente significativo para os ácidos gordos polinsaturados (β =-0,06, IC 95% -0,12;-0,00). Analisando separadamente ómega-3 e ómega-6, verificaram-se associações em sentidos opostos, mas apenas para os ácidos gordos ómega-6 foi verificado um efeito no limiar da significância estatística (β =-0,05, IC 95% -0,11; 0,00).

CONCLUSÕES: A ingestão de vitaminas A,C, D e E não se associou com os níveis de PCR-as e, das gorduras avaliadas, apenas os ácidos gordos polinsaturados mostraram efeito significativo, particularmente os ómega-6.

CO18. EVOLUÇÃO DA ALIMENTAÇÃO SAUDÁVEL DOS 4 PARA OS 7 ANOS DE IDADE: DADOS DA COORTE DE BASE POPULACIONAL GERAÇÃO XXI

Marta Costa¹; Carla Lopes^{1,2}; Sofia Vilela¹

¹EPIUnit - Instituto de Saúde Pública da Universidade do Porto

²Departamento de Ciências da Saúde Pública e Forenses e Educação Médica da Faculdade de Medicina da Universidade do Porto

INTRODUÇÃO: A avaliação da estabilidade alimentar durante a infância é importante na formulação de intervenções para melhorar a qualidade alimentar.

OBJETIVOS: Avaliar a evolução de um índice de alimentação saudável dos 4 para os 7 anos de idade e a sua associação com fatores sociodemográficos.

METODOLOGIA: A amostra inclui 5046 crianças avaliadas aos 4 e 7 anos, no âmbito da coorte de nascimento de base populacional Geração XXI. O consumo alimentar foi avaliado através de um questionário de frequência alimentar. Um índice de alimentação saudável foi desenvolvido em ambas as idades para avaliar a adesão às recomendações alimentares da Organização Mundial da Saúde, incluindo 8 grupos alimentares: Hortofrutícolas; Laticínios; Carne e produtos cárneos; Peixe e ovos; Refrigerantes; Snacks salgados; Doces; e Cereais. Foram obtidos quartis de consumo para cada grupo e atribuída uma pontuação entre 1 a 4 (uma pontuação de 4 atribuída ao quartil superior ou inferior de consumo de alimentos mais ou menos saudáveis, respetivamente). O score varia de 8 a 32, uma pontuação mais elevada representa melhor alimentação. As associações foram avaliadas através de modelos de regressão linear ajustados para idade e escolaridade materna e para o sexo e índice de massa corporal da criança.

RESULTADOS: O índice de alimentação saudável apresentou uma pontuação média de $21,2 \pm 3,53$ aos 4 anos e de $19,6 \pm 3,82$ aos 7 anos. Em ambas as idades o índice correlacionou-se positivamente com a ingestão proteica e de fibra, e inversamente com ingestão calórica e de gordura. Apesar da diminuição da pontuação média dos 4 para os 7, após ajuste, uma associação positiva foi encontrada entre o índice aos 4 e 7 anos (β =0,524; IC95%=0,497; 0,551). A escolaridade (β =0,103; IC95%=0,081; 0,126) e idade materna (β =0,034; IC95%=0,016; 0,051) associaram-se positivamente ao índice aos 7 anos.

CONCLUSÕES: Uma alimentação mais saudável aos 4 anos, bem como idade e escolaridade materna, aumentam a probabilidade da alimentação saudável se manter aos 7 anos.

CO , O , VENCEDORES

1.º Prémio

CO14 | Weight loss and its maintenance for type 2 diabetes prevention – the PREVIEW study

2.º Prémio

CO16 | Prevalence and associated factors of metabolically healthy overweight in young adults

3.º Prémio

CO15 | Anthocyanins: from the gut to the brain