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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

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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.

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

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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

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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

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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

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