

Proceedings | Resumos



II Jornadas lusófonas de Nutrição



**Melhoria da
Qualidade de Vida
e Longevidade**

**Alimentação e Promoção da Saúde
/Prevenção das Doenças**

Alimentação e Doenças do Envelhecimento

**Degustação de pratos à base de medusa
(Parceria CBIOS/CiiEM/ESHTE)**

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**Auditório
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UNIVERSIDADE
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Campus Lisboa

II Lusofona's Nutrition Meeting

II Jornadas Lusófonas de Nutrição

26 October | 26 Outubro
Lisboa - Universidade Lusófona

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Open Session

Mário Moutinho
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1st Session | Sessão 1

Alimentação e Promoção da Saúde/ Prevenção das Doenças

Chairman | Moderador

António Raposo

Invited Speaker | Prelector convidado

C.01 - O papel do nutricionista junto da comunidade

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Abstract / Resumo da Comunicação

A nível comunitário, o nutricionista desenvolve um trabalho fundamental, com diversas vertentes. A nutrição comunitária inclui rastreios, ações de formação para incentivar o consumo de alimentos saudáveis e a promoção da atividade física. Além disso, é possível promover métodos de cultivo sustentáveis e realizar atividades nos mercados locais, incluindo demonstrações de preparação e confeção de alimentos. Quanto ao trabalho junto da comunidade escolar, o nutricionista pode promover programas de educação. Pode ainda zelar pela segurança alimentar das cantinas escolares, realizando auditorias.

No caso específico do trabalho realizado no complexo termal Chaves Termas & Spa e no Balneário Pedagógico de Investigação e Desenvolvimento de Práticas Termas de Vidago, o nutricionista trabalha com um grupo de população composta maioritariamente por mulheres, de idade superior a 65 anos. Os utentes do balneário apresentam diversas patologias, incluindo excesso de peso e obesidade, hipertensão arterial, diabetes e doença osteoarticular. Por isso, torna-se importante realizar uma promoção adequada não só da alimentação, mas também da atividade física. As consultas de nutrição são apenas uma parte do trabalho a realizar. Dinamiza-se a atividade física através da realização de caminhadas e faz-se educação para a saúde através de palestras e de Workshops de culinária saudável (show cooking). Além disso, foram estabelecidas parcerias com as unidades hoteleiras locais, no sentido de prepararem ementas saudáveis adequadas aos utentes.

Em conclusão, o trabalho de um nutricionista numa autarquia é fundamental, porque se trata de um trabalho preventivo que reduz os custos financeiros para o Sistema de Saúde e, sobretudo, promove um estilo de vida saudável que permite uma vida mais saudável e equilibrada aos municípios.

Palavras-chave: autarquia; complexo termal; nutrição comunitária; nutrição escolar; programas de nutrição e alimentação; municípios.

Speaker | Prelector

C.02 - Influence of food consistency on food intake of institutionalized elderly with neurological diseases

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Abstract / Resumo da Comunicação

Dysphagia is a swallowing disorder that is characterized by changes at any stage and / or between stages of swallowing dynamics [1]. This disorder is a frequent symptom in individuals with neurodegenerative diseases such as Parkinson's and dementia syndromes [2]. Dysphagia is associated with increased risk of respiratory infection, dehydration and malnutrition [3]. One of the strategies for managing dysphagia and preventing its consequences is the adaptation of food consistency [3]. The main objective of the present study is to describe the % of food intake according to the different levels of consistency adaptation in institutionalized elderly with neurodegenerative diseases.

This was a cross-sectional, observational and case-control study, and patients admitted to the Senior Neurological Campus between February and June 2018 were included with at least one neurodegenerative disease and age ≥ 65 years. Food intake was quantified in percentage of consumption of each component of the dish, namely protein source, carbohydrates and fiber, through a direct and subjective observational evaluation of 3 lunches in 3 consecutive days. The sample consisted of 27 patients with mean age of 73.33 ± 3.78 (16 men and 11 women), with Parkinson's disease being the most frequent disease (52%). The control group included users without food consistency adaptation ($n = 3$), while the case group ($n = 24$) included users with adaptations. It was concluded that the level of consistency adaptation did not influence the % of food intake in both groups.

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Keynote

Sofia Mendes de Sousa

C.03 - Programa Nacional para a Promoção da Alimentação Saudável da Direção-Geral da Saúde

Sofia Mendes de Sousa

Direção Geral de Saúde

Em 2012, foram aprovados oito programas prioritários a desenvolver pela Direção-Geral da Saúde (DGS), entre eles o Programa Nacional para a Promoção da Alimentação Saudável (PNPAS), com um horizonte temporal de cinco anos (2012-2016). O PNPAS assume-se desde então como um programa nacional de ação, na área da alimentação e nutrição tendo como finalidade melhorar o estado nutricional da população, incentivando a disponibilidade física e económica de alimentos constituintes de um padrão alimentar saudável e criar as condições para que a população os valorize, aprecie e consuma, integrando-os nas suas rotinas diárias. Tendo em conta as linhas de orientação da Organização Mundial da Saúde e da Comissão Europeia, o PNPAS, ao longo de 2012-2018, centrou parte da sua atividade no desenvolvimento de uma intervenção para a melhoria da saúde dos cidadãos em outras políticas fora do setor da saúde, considerando que a modificação dos determinantes do consumo alimentar exige o envolvimento dos diferentes setores da sociedade. Desde 29 de dezembro de 2017 que Portugal apresenta uma Estratégia Integrada para a Promoção da Alimentação Saudável (EIPAS), tratando-se, provavelmente de um dos mais importantes documentos na área da saúde pública em Portugal, tendo sido este grupo de trabalho conduzido pela DGS. Palavras-chave: Programa prioritário; Política Alimentar; Alimentação Saudável; Estratégia Nacional; Portugal.

Chairman | Moderador
Teresa Guerreiro

Invited Speaker | Prelector convidado

C.04 - Eat well play better

Darchite Kantelal

Portuguese Vegetarian Association

Abstract | Resumo da Comunicação

Nutrition plays a crucial role in the athletes' health and it can also help improve sports performance. Body composition data and nutrient requirements are useful to tailor dietary strategies to individual needs of the athlete while aiding in preparation and recovery from competition and training. Current sports nutrition guidelines suggest that football players should have a carbohydrate intake ranging from 5 to 10 g/kg/day, a protein intake within 1.4 to 2 g/kg/day and a fat intake ranging from 20 to 35% of total energy intake. Energy consumption of athletes has to be periodized according to training load or competition day. Dehydration can be detrimental to football and hence, fluid needs should also be met.

In elite football, the timing of nutritional strategies is of great importance as players have to quickly recover between sessions and risk of injury has to be minimized. In this sense, practical and handy snacks are useful to carry when traveling in away games. Sports supplements can also offer a convenient source of recovery nutrition and potentially enhance physical performance.

On the other hand, sustainable eating habits and reducing food waste should also be emphasized in sports nutrition and greater plant protein intake should be encouraged.

Keywords: sports nutrition; energy requirements; performance; soccer; sustainability;

Speaker | Prelector

C.05 - Vitis vinera L. pomace: chemical and nutritional characterization

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Abstract | Resumo da Comunicação

According to the International Organization of Vine and Wine (OIV), Portugal is one of the top fifteen wine-producing countries in the world, having a production of 6,600 hl in 2017. Grape (*Vitis vinera L.*) pomace, a wine-production by-product consists of stalks, seeds and skins, accounts for about 25% weight of the grape crushed. Grape pomace is a potential source of various compounds that could be applied in pharmaceutical, cosmetic and food industry to improve nutritional characteristics. The aim of this study was the characterization of five different grape pomaces from two portuguese regions, Alentejo and Ribatejo. In this sense, ash content, relative humidity, pH, phenolic content, antioxidant activity and protein of the dried samples were determined. A strong correlation between antioxidant activity and polyphenols contents was observed. Considering the obtained results, inclusion of grape pomace in the industrial production of foodstuffs could be a step towards the future of human nutrition and health.

Acknowledgment: The authors wish to thank Hélder Fernandes e Daniel Caldeira from Escola Secundária 3º CEB do Pinhal Novo.

Invited Speaker | Prelector convidado

C.06 - Bioacessibilidade e processamento. O caso dos cereais e pseudocereais

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Abstract | Resumo da Comunicação

Biodisponibilidade é um conceito-chave para determinar o valor nutricional dos alimentos. Corresponde à fração de um composto libertado da matriz alimentar, durante a digestão para absorção intestinal.

Os pseudocereais como o amaranto, a quinoa e o trigo-sarraceno são sementes que tal como o arroz, caracterizam-se por serem isentos de glúten, mas ainda são escassas informações sobre bioacessibilidade e retenção de nutrientes após processamento.

Estimar a bioacessibilidade de minerais e folatos nos pseudocereais e arroz utilizando um protocolo de digestão estático, harmonizado "in vitro" após processamento será objeto do estudo.

A cozedura aumenta a bioacessibilidade dos folatos para todos os pseudocereais, com valores perto dos 100% no 5-metil-tetrahidrofolato. Na maltagem a

bioacessibilidade dos folatos aumenta, mas menos expressivamente que na cozedura. No arroz, verificou-se uma diminuição dessa bioacessibilidade. Também os minerais viram a sua bioacessibilidade aumentada com o processamento com maiores aumentos no cobre, manganês, magnésio ferro e cálcio. Comparando-se diferentes simulações de mastigação observou-se que uma moagem fina aumenta a bioacessibilidade em todas as formas de folatos e de minerais, com exceção do zinco e do cálcio que não são afetados.

O conhecimento da bioacessibilidade, relacionada com o processamento é assim importante para o cálculo da composição nutricional das dietas.

Palavras Chave: Bioacessibilidade, Folatos, Minerais, Maltagem, Quinoa, Trigo-sarraceno, Amarantho.

Speaker | *Prelector*

C.07 - Application of ionic liquids-nanoparticles hybrid systems in food technology

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Abstract / *Resumo da Comunicação*

When developing delivery systems, the low solubility of many compounds represents a major challenge. Since Ionic liquids (ILs) may be placed in several types of solutions, to increase solubility [1] and Nanotechnology may allow a controlled and/or targeted delivery [2], the combination of nanocarriers and ILs may be relevant to deliver poorly soluble compounds. Therefore, the aim of this work was to develop an IL-nanoparticle hybrid system as a new strategy to deliver rutin. This flavonoid has antioxidant properties, can be found in buckwheat [3] and may be used in food supplements and nutraceuticals.

Poly(lactic-co-glycolic acid) (PLGA) 50:50 or 75:25 were used to produce nanoparticles by a modified solvent-evaporation W/O/W double emulsion technique [4]. The inner phase was an aqueous solution of 0.2 % (v/v) of a choline-based IL [2], (2-hydroxyethyl)-trimethylammonium-L-phenylalaninate [Cho][Phe] or (2-hydroxyethyl)-trimethylammonium-L-glutamate [Cho][Glu], dissolving rutin to its maximum solubility. This phase was also prepared at pH 6.7 (isoelectric point of rutin) [5]. The physico-chemical properties of the hybrid IL-nanosystems and the association efficiency (AE) was evaluated. IL-Nanoparticles without pH adjustment had a diameter of 250-300 nm with acceptable polydispersity index (between 0.2-0.4) and good colloidal stability (-35 to -45 mV). When the pH of the inner phase was adjusted, a significant enhancement in particle size was observed while maintaining good PdI and zeta potential results. The AE in the presence of the ILs was higher than 50 % at both pH. Results show the potential of the IL-PLGA nanoparticles hybrid systems to deliver poorly soluble drugs.

Acknowledgments: The authors would like to thank to Fundação para a Ciência e a Tecnologia, Portugal (FCT/MCTES (PIDDAC), UID/TP/04567/2016) and also to by COMPETE 2020 (PTDC/MEC-DER/32610/2017). A special acknowledgment is given to Professor André Rolim Baby for the rutin gift.

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Invited Speaker | *Prelector convidado*

C.08 - BioMol4Health_Biological Chemistry: Longevity in a cup of tea

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Abstract / *Resumo da Comunicação*

Infusions have been studied on what concerns Alzheimer Disease, digestive process, diet cholesterol absorption and its biosynthesis inhibition. In the first two cases the inhibition of acetylcholinesterase (AChE) has been addressed. In the last two situations, an in vitro intestinal barrier has been simulated and the inhibition of the regulator enzyme (HMGR) in cholesterol biosynthesis pathway has been studied. AChE has been the target of infusions inhibitory activity as its inhibition has been seen to improve cognition and global functioning¹ in AD suffering people and to improve the gastrointestinal motility². Given to lab animals the compounds present in the infusions were able to reach the brain and inhibit the enzyme³.

The effect of infusions on cholesterol bioavailability pointed out that some infusions were able to reduce cholesterol permeation⁴ and also to have some inhibitory effect on it biosynthesis⁴. These compounds are able to bind to serum proteins and while being bound they have no inhibitory activity⁵. Studies have indicated that phenolics are able to modify the cell proteome⁶. The infusions have also been shown to modify the amount of cholesterol transporter proteins in cell membrane and this maybe one of possible explanations for the reduction in cholesterol transport detected under the effect of infusions, on some people⁷ and on simulated intestinal barrier.

Keywords

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2st Session | Sessão 2 Alimentação e Doenças do Envelhecimento

Chairman | *Moderador*

Emília Alves

Keynote

Odete Vicente de Sousa

C.09 - Impact of Oral Nutritional Supplementation and a Psychomotor Rehabilitation Program on Community-Dwelling Alzheimer's Disease Older Adults

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Abstract / *Resumo da Comunicação*

In the present study, a 21-day small volume high protein energy-dense oral liquid supplement and a psychomotor rehabilitation program had a positive effect on nutritional and functional status of community-dwelling older adults with probable mild Alzheimer's disease (AD). An increase in Mini Nutritional Assessment (MNA) scores in both intervention groups [nutritional supplementation group (NSG) and nutritional supplementation psychomotor rehabilitation program group (NSPRG)] and body weight (kg) in the NSPRG, was observed. Moreover, these higher MNA scores were maintained after discontinuing intervention, at 90-day of follow up. Another positive finding was the functional status improvement among NSPRG at 90 days of follow-up.

It is therefore debatable whether the intervention focused solely on standard dietetic advice and oral nutritional supplementation (ONS) is enough to improve the nutritional and functional status. Indeed, in a systematic review by Liu et al.,¹ it was reported that "nutritional supplements," "training/education programs," "stimulation/attention modification," or "feeding assistance" showed limited evidence of effectiveness in improving food intake, body weight, and the degree of im-

environment/routine modification, or feeding assistance showed low to moderate evidence in improving food intake, body weight and body mass index in older adults with dementia. Evidence is sparse concerning positive changes of nutritional, functional and cognitive status in community-dwelling patients with AD by any interventions. However, considering that decline in body composition and physical performance (muscle function) is associated with AD disease progression² as well as with a negative impact on health status and quality of life,^{3, 4} present results reveal the importance of providing an early ONS and a psychomotor rehabilitation program intervention in undernourished or nutritionally at risk community-dwelling older adults with mild probable AD. Besides, our results reinforce the importance of multidisciplinary intervention in community dwelling older adults with mild probable AD.

Keywords:

Alzheimer's disease, community-dwelling, Mini Nutritional Assessment, undernutrition, oral supplementation, psychomotor rehabilitation program.

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Invited Speaker | Prelector Convidado

C.10 - Food Bioactives and their contribution to prevent neurodegenerative diseases

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Abstract / Resumo da Comunicação

Neurodegenerative disorders comprise multifactorial disorders which are increasing and remain cureless. The possibility of altering the progression or the development of these diseases through diet is an emerging and attractive approach. Epidemiological and clinical studies have highlighted the health potential of diets rich in fruits and vegetables. These foods are sources of (poly)phenols, natural compounds described to have health benefits, having potential to prevent and/or retard the development of such disorders, by modulating several cellular and molecular pathways. The prevention and treatment of neurodegeneration, characterized by a mechanistic complexity, requires novel multi-targeted therapeutic strategies, targeting different disease hallmarks. In that sense, dietary (poly)phenols can emerge as a reliable pleiotropic alternative. However, the precise contribution of dietary (poly)phenols and their metabolites is still in the beginning of being elucidated. Absorption, blood concentrations and metabolic fate of some (poly)phenols is quite uncertain, which can hamper the research in terms of understanding their effects. In fact, it is necessary to identify the bioavailable metabolites resulting from dietary (poly)phenol, as well as their ability to overcome/interact with cellular barriers and reach target tissues. It will be reviewed the current knowledge about the polyphenols metabolites described to reach the brain and their mode of action.

Keywords: neurodegeneration; metabolism; polyphenols; blood brain barrier; dietary bioactives.

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II Lusofona's Nutrition Meeting
II Jornadas Lusófonas de Nutrição

Speaker | Prelector

C.11 - Contribution of foods derived from cereals to the intake of vitamins B1 and B2 in the Portuguese diet

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Abstract / Resumo da Comunicação

Introduction: Cereals are a nutritionally relevant group due primarily to their richness in vitamins, especially water-soluble B-complex vitamins such as vitamin B1 and B2 and minerals. As such its consumption is important because they allow a good metabolization of carbohydrates, lipids and amino acids and a normal neuronal function. Objectives: To determine by HPLC the occurrence of vitamin B1 and B2 in samples of cereals and cereal products in order to evaluate their contribution to the intake of vitamin B1 and B2 in the Portuguese diet in adults. Methods: The analytical methodology used is based on the release of vitamins from the food matrix through acid hydrolysis and subsequent conversion of the phosphorylated forms into the corresponding free forms (thiamine and riboflavin) through an enzymatic treatment. Subsequently, these free forms are quantified through high performance reverse phase liquid chromatography (HPLC-RP) with fluorescence detector. Results and Discussion: With the exception of the rice sample, vitamin B1 and B2 are present in all samples studied. In the remaining samples, the levels found for vitamin B1 ranged from 0.02 to 0.5 mg / 100g. Since for this vitamin the RDI is 1.1 mg / day, the consumption of 100g of these foods can contribute to the intake of amounts of vitamin that vary between 1.3% and 45.5% of RDI. In the case of vitamin B2 the levels found vary between 0.014 and 1.1 mg / 100g corresponding respectively to 1.0% and 78.6% of the RDI which is 1.4 mg / day. Conclusion: This study allowed us to verify that foods from the group of cereals and cereal derivatives, especially the group of breakfast cereals contributes to a good contribution of vitamin B1 and B2 in the Portuguese diet in adults.

Key-words: cereals, thiamine, riboflavin, vitamin B1, vitamin B2, HPLC, RDI;

Invites Speaker | Prelector Convidado

C.12 - Frailty in Portuguese older adults: findings from Nutrition UP 65 study

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Abstract / Resumo da Comunicação

Introduction: The Nutrition UP 65 project was carried out to improve the knowledge about Portuguese older adults' nutritional status. Frailty has an increased relevance at an older age, due to its impact on health status and quality of life. Therefore, the aim of this work is to present the results of frailty frequency and its associated factors among older adults in Portugal.

Methods: Research findings concerning the results of Nutrition UP 65 study, namely about frailty status were gathered. 1457 older adults with 65 years or older, included in a cross-sectional analysis were evaluated. Sociodemographic and lifestyle characteristics were collected, and frailty was identified according to Fried's frailty phenotype definition.

Results: Pre-frailty was observed in 54.3% and frailty in 21.5% of the participants. Moreover, results from logistic regression analyses revealed that age >75, lower education level, being single, divorced or widower, being professionally inactive, poor self-perception of health status, not drinking alcohol, being obese and undernourished or at undernutrition risk were associated with frailty.

Conclusion: A high proportion of older adults in Portugal is frail or pre-frail. Several risk factors were identified in this study. This could be important to target older adults that may be vulnerable to frailty and to create public health strategies to manage this condition.

Keywords: frailty, older adults, nutritional status, community-dwelling