PA.
RESUMOS PALESTRAS

SPORTS NUTRITION STRATEGIES: RECONSIDERING THE IDIOSYNCRASIES OF ELITE AND RECREATIONAL ATHLETES

Performance enhancement in recreational athletes: how far should we go?

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Early attempts to define an elite performer were based on time spent practicing a sport, with suggestions that 10 years or 10,000 hours are required to achieve expert level (1). Nowadays, the participant classification framework uses training volume and performance metrics to classify a participant to one of the following: sedentary, recreationally active, trained/developmental, highly trained/national level, elite/international level or world class (2). When it comes to nutrient intake for athletes and active individuals, there exists a hierarchy of needs, and this may be adjusted to training level and performance goals. Studies are often undertaken with ill-defined significance to the professional athlete, using non-ecologically relevant training models, and outside of the "real-world" complex. Sports nutrition evidence-based practice must focus on judgement with patient preferences, values, and circumstances, with its appropriateness determined within the context in which it is to be applied rather than a "one-size-fits-all" solution and consider guidelines. Competition nutrition strategies provide a countermeasure to performance-limiting factors, focusing on fuel availability, central nervous system effects and hydration, however, nutritionist must first understand who the patient and his training/competition goals is, in order to adjust those strategies.

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Nutrition for health and body composition in non-athletes: is it worth to use elite sport strategies?

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Nutrition plays a crucial role in promoting good health and achieving a desired body composition. Athletes, in particular, have a specific set of nutritional requirements to support their training and performance. Nowadays, there is a growing demand from the general non-athletic population for nutritional support in order to achieve their own health and body composition goals, and the question arises: how appropriate are sports-specific nutritional strategies for non-athletes? High physical demands lead to higher energy needs, especially from carbohydrate-rich foods, when compared to the average person, even if they are engaging a recreationally-programmed training regimen. They may also require higher amounts of protein to support muscle repair and growth, as well as specific nutrient timing strategies and dietary supplements. But the fact is that the physically active population tends to look for elite sports nutritional strategies in order to achieve their own goals, and it is important to select what might be useful, health-promoting and sustainable.

It is important to consider individual factors, such as level of physical activity, goals, and access to resources and support, when determining an appropriate nutrition plan for optimal health and body composition. Nutritionists should assume the main roles in policy making, and an expert commission could be useful to debate the future of individualized nutritional approaches for the non-athletic physically active population.

ULTRA-PROCESSED FOODS AND HEALTH: EVIDENCE AND POLICY IMPLICATIONS

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All over the world, long-established dietary patterns based on a variety of unprocessed or minimally processed foods and freshly prepared meals made with these foods using processed culinary ingredients and some processed foods, are being displaced by ultra-processed foods. There is mounting consistent evidence from large cohort studies, and now by a randomised controlled trial, that displacement of unprocessed or minimally processed foods and freshly prepared meals by ultra-processed foods induces passive dietary energy overconsumption and increases the risk of obesity and other chronic non-communicable diseases, and of all-cause mortality. These studies also show that the ill- effects of ultra-processed foods do not depend only on the use of high amounts of fat, sugar or salt in their manufacture. Other likely mechanisms are due to ultra-processing itself such as the destruction of the food matrix and the loss of the synergy existing in the original foods between nutrients and other bioactive compounds. Or the presence of harmful substances created by high temperatures and compression or released by synthetic packaging material. Ultra-processing also depends on the use of a myriad of additives whose effects on health, cumulatively and in combination, are unknown. This is why ultra-processed foods reformulated with less salt, sugar or fat remain harmful to health. Official international and national dietary guidelines should all emphasise a great diversity of unprocessed or minimally processed foods, mostly plants, and freshly prepared meals, and clearly state that ultra-processed foods should be avoided. National dietary guidelines already do so in Brazil and a few other countries. This will benefit human health and well-being. It will also have social, cultural, economic and environmental benefits, including the support of local cooperative and family farming, retailing and catering businesses, and protection of non-renewable resources and biodiversity. Statutory policies and programmes should now be put in place, approximating to those now used to limit smoking and use of tobacco. They should also support, protect and encourage the production, distribution and consumption of unprocessed and minimally processed foods, and the preparation and enjoyment of fresh meals at home, schools, workplaces, hospitals, community facilities, and in modestly priced restaurants.

NUTRITIONIST AT ARTIFICIAL NUTRITION

Cancer patient

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A nutrição artificial consiste em duas grandes áreas, a nutrição entérica e a nutrição parentérica, permitindo uma alimentação / nutrição quando as

necessidades nutricionais não são atingidas quer totalmente quer parcialmente pela via oral, com o risco de agravar um estado nutricional que a maior parte das vezes já se encontra debilitado.

O doente oncológico quer pela patologia em si quer pelos tratamentos a que é submetido é um doente de apresenta elevado risco de malnutrição pelo que quando é admitido numa instituição hospitalar deve ser logo ativado o percurso de cuidados nutricionais. Este percurso é iniciado pelo rastreio do risco nutricional, seguido pela avaliação do estado nutricional e posteriormente o plano de intervenção nutricional com a respetiva monitorização. Este percurso deve ser dinâmico para poder abranger as várias fases de tratamento / sintomatologia associadas à doença oncológica.

O conhecimento e domínio das fórmulas e técnicas de administração de nutrição entérica e parentérica, irá permitir que a abordagem nutricional seja apropriada ao doente em questão e que garanta com segurança o objetivo da sua utilização.

O conhecimento da monitorização da nutrição entérica e parentérica irá permitir a dinâmica que deve caraterizar o suporte nutricional, possibilitando um ajuste de acordo com a tolerância e a situação clínica.

A nutrição artificial é muito mais que o conhecimento das formulações, das técnicas de administração e da monitorização, é a "arte" de saber aplicar esse conhecimento ao estado nutricional e à situação clínica e metabólica dos vários tipos de doentes.

Doente crítico

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O doente crítico enquadra-se numa população heterogénea de doentes, que têm em comum alterações metabólicas e hemodinâmicas, que motivam a sua admissão em Cuidados Intensivos. A doença crítica compreende fases, que cursam habitualmente com uma evolução inicial em choque, à qual se segue um período de doença aguda, caracterizado por hipercatabolismo proteico e flutuações importantes do metabolismo (1).

A terapêutica nutricional deve atender às diferentes fases da doença crítica e acompanhar a sua evolução clínica e metabólica, salvaguardando, por um lado, o prejuízo associado ao défice de aporte nutricional e minimizando, por outro, os riscos clínicos associados à sobrealimentação. Fatores como o risco nutricional e o risco de refeeding são determinantes na decisão de suporte e intervenção nutricional destes doentes, que deve ser individualizada e ajustada às necessidades nutricionais impostas pela condição clínica em cada momento da doença (2-4). Por se tratar de indivíduos severamente doentes, muitas vezes sedados e sob ventilação mecânica invasiva, o suporte nutricional baseia-se na utilização de nutrição entérica ou parentérica, que devem ser iniciadas precocemente, desde que a estabilidade do doente o permita e ajustadas, não só à fase clínica e complicações associadas, mas também às necessidades nutricionais individuais, sabendo que a um suporte nutricional individualizado corresponde um impacto positivo sobre o prognóstico clínico e a redução de complicações e tempo de internamento (5, 6).

O nutricionista do doente crítico deve conhecer e apreender as diferentes fases da doença, acompanhando diariamente a sua evolução, desde o início. O nutricionista do doente crítico deve ser parte integrante e permanente da Equipa Multidisciplinar de Cuidados Intensivos.

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THE IMPORTANCE OF NUTRITION IN THE PREVENTION AND TREATMENT OF PRESSURE ULCERS

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Pressure ulcers (PU) are multifactorial and complex clinical entities that require a holistic and personalized therapeutic plan. Recent studies have highlighted nutrition as a key pillar in this context (1). Alongside regular skin assessment, patient repositioning, and the use of appropriate support surfaces, they emerge as fundamental components in the prevention of pressure ulcers, according to current scientific evidence (2).

Adequate nutrition plays a fundamental role in the prevention and treatment of PU, as malnutrition is a proven risk factor for the development of PU, leading to increased fragility of the skin and tissues, and consequently delaying the healing process (3). A balanced diet, enriched with proteins, vitamins A, C, and E, zinc, and other vital micronutrients, can not only prevent the emergence of these lesions but also accelerate the tissue regeneration process (4).

Research has also underscored the potential of nutritional supplementation, particularly with arginine, micronutrients, and omega-3 fatty acids, in the prevention and treatment of PU, contributing to improved healing (5). Omega-3 fatty acids, for example, have anti-inflammatory properties and can speed up wound healing, benefiting skin health (6). Another crucial aspect is hydration, as adequate fluid intake can promote the maintenance of skin integrity and prevent PU, given that dehydration can increase susceptibility to skin rupture (7).

It is imperative that the clinical team carry out nutritional screenings and perform regular evaluations, providing appropriate dietary guidance to patients at risk or with existing PU. Prevention and treatment are intrinsically linked, and given the pivotal role of nutrition, it is essential that patients and their caregivers be properly informed about the importance of balanced nutrition, adequate hydration, and the potential benefits of nutritional supplementation.

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CHALLENGES AND OPPORTUNITIES OF RESEARCH IN FOOD SERVICE

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Food service is a complex and multifaceted system where inputs (human labour and skills, materials, facilities and operations) are transformed into outputs (meals, customer satisfaction, employee satisfaction and financial accountability) (1).
Food service must provide nutritious meals tailored to each group's specific needs and preferences while also being tasty, appealing, and familiar. Furthermore, these meals must be safe, sustainable, and financially feasible. Meeting these requirements demands continuous research and innovation.
Today, digitalisation, social changes and increasing environmental vulnerability are three major factors driving the research in food service (2). First, new technologies, such as automated ordering systems, "smart" appliances, robotics, IoT, and artificial intelligence, can improve the efficiency and effectiveness of food service operations and consumer lives. Second, regarding social changes, as an example, the rise of the elderly population may lead to an increased demand for meals that are easier to chew or digest and consumed in a more communal food space. Additionally, increasing cultural diversity can lead to a demand for more diverse food options. Third, reducing the food system's environmental impact is a never-ending needed effort. Food service sector needs to optimize available resources, increase the use of food produced with low-input and regenerative agriculture principles, reduce food waste, and engage consumers to shift to more sustainable diets. As an example, the increasing interest in plant-based and alternative protein sources is an area of significant research and development, with great impact on the food service industry.
Several disciplines contribute to the progress of the dynamic and ever-changing food service sector, namely, nutrition and food sciences, engineering, operations and human resources management, hospitality, marketing, architecture, and design.

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QUALITY OF CHILD AND ADOLESCENT MENTAL HEALTH CARE AND NUTRITION

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Mental health for children, adolescents and young people is a priority for the WHO European region, as outlined in the WHO European Framework for Action on Mental Health. Strengthening quality of care for this population is essential and priority for WHO Athens Quality of Care office. WHO recognizes that in order to effectively support mental health of children and adolescents, a multi sectoral approach engaging different stakeholders is required. Research suggests there are links between nutrition, maternal nutrition, obesity and mental health for children and adolescents. WHO recommends for mental health and other sectors, including nutrition, to work together to effectively support prevention and promotion activities (such as a healthy lifestyle and health nutrition) which have a positive impact on both mental health, obesity and NCDs. Integrating mental health care into other specialized health services, such as nutrition and children and maternal health, is also recommended to reach more children and adolescents in need of mental health care. Investing in nutrition and mental health can have powerful impacts for the wellbeing and mental health of children and adolescents.

HELPING CONSUMERS ACHIEVE SUSTAINABLE FOOD CHOICES

Consumer behavior: Opportunities and challenges toward sustainable food choices

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Adding to health considerations, feeding a growing global population raises environmental challenges such as climate change and biodiversity loss. Addressing these challenges requires integrated approaches that focus on food production, provision, consumption, and the broader political and sociocultural environment. This presentation highlights the need to consider consumers' capacity, opportunity, and motivation to engage in more sustainable food practices, examines known barriers and enablers for sustainable food transitions at the level of consumption, and discusses the role of collective meal contexts in these transitions. The presentation also refers to resources that can help professionals, intervention planners and evaluators optimize their efforts to promote more sustainable food choices in diverse contexts.

POLICE AND KEY ACTIONS REQUIRED TO CREATE HEALTHY FOOD ENVIRONMENTS IN EUROPE

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Diet related non-communicable diseases (NCDs) are recognised as mayor global and public health concerns. The food environment plays a key role in food choice and therefore the prevention of diet related NCDs. Food policy monitoring and benchmarking is recommended to create healthy food environments and reduce the risk of diet related NCDs. Therefore, the aim of this study was to assess food environment policy and infrastructure support implementation in Europe and to identify key actions required to create healthy food environments in European countries. We used the Healthy Food Environment Policy Index (Food-EPI) to assess the level of food environment policy and infrastructure support implementation in 11 European countries—Estonia, Finland, Germany, Ireland, Italy, the Netherlands, Norway, Poland, Portugal, Slovenia, and Spain in 2019–2021. Food policies and infrastructure support were identified in each country and validated by government officials. Expert panels from each country ranked the level of food policy and infrastructure support implementation and identified key actions necessary for healthier food environments. Finland (32%) and Portugal (29%) were ranked by experts with the highest level of food policy implementation. Finland (83%) and the Netherlands (38%) had the highest level of implementation of infrastructure support. Among the mayor gaps, experts identified a lack policy implementation targeting healthy food provision, regulation of food promotion, regulation of food retail, healthy food environment funding, policy monitoring, and the implementation of health in all policies. The key actions identified by experts included to set standards for nutrients of concern in processed foods, to improve food environments in school, to implement fruit and vegetable subsidies, to tax unhealthy food and beverage, and to ban unhealthy food marketing to children. Food policies and infrastructure support which enables healthy food environments are key for the prevention of diet-related non-communicable diseases in Europe.

EFFECTIVE COMMUNICATION IN DIFFERENT CONTEXTS

Leadership and management of high performance teams

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Num mundo em permanente mudança e incerteza, as equipas de trabalho e as suas lideranças enfrentam desafios constantes, independentemente do seu contexto de realização. Neste sentido, para fazer face a estas exigências e para a otimização do desempenho, necessitamos de pessoas e equipas capacitadas, sendo de fulcral importância o papel do líder.
Assim, pretende-se explanar as consequências psicológicas intra e interindividuais dos contextos de elevada exigência, as principais características das equipas de alto rendimento, bem como os princípios orientadores de uma liderança eficaz. Por último, apresenta-se um exemplo de uma equipa de trabalho multidisciplinar, assim como algumas pistas para a intervenção articulada entre os profissionais da Psicologia e da Nutrição.

DIETARY EXPOSURES AND METABOLIC DISEASE

Há ligação entre a ingestão de aminoácidos de cadeia ramificada e doença metabólica?

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Os aminoácidos de cadeia ramificada (AACR) — isoleucina, leucina e valina — são nutricionalmente essenciais e desempenham funções muito relevantes no metabolismo humano. Estes AACR têm de ser obtidos a partir da dieta, sendo possível a sua síntese de novo pela microbiota intestinal em pequenas quantidades. Para além do seu papel como substratos na síntese proteica e do efeito da leucina como nutriente estimulador do complexo mTOR, o processamento bioquímico dos AACR liberta um conjunto de intermediários metabólicos com propriedades de sinalização únicas que só agora se começam a descobrir. Dado o papel dos AACR no metabolismo muscular, estes têm tido grande atenção no tratamento/prevenção da sarcopenia, na hipertrofia muscular e na recuperação de desportistas/atletas. A valorização destes efeitos positivos no músculo levou a uma explosão no mercado de suplementos de AACR ou de proteínas com alto teor de AACR, assim como, de produtos alimentares com elevado teor de AACR, por exemplo pela adição de proteínas do soro de leite. Dado que os produtos se mantêm no mercado e a oferta cresce, é expectável que o seu consumo tenha aumentado, isto num contexto em que a dieta de uma grande parte dos portugueses já é rica em proteína. Em 1969, os estudos pioneiros de Felig e colaboradores mostraram que indivíduos com obesidade e insulinorresistência apresentavam elevação dos AACR em circulação. Mais recentemente estudos de metabolómica permitiram concluir que em humanos, os níveis de AACR e seus metabolitos são marcadores metabólicos de obesidade, insulinorresistência e diabetes mellitus tipo 2. Assim, o aumento do consumo de AACR, por indivíduos maioritariamente sedentários numa população com elevada prevalência de obesidade, diabetes e doença cardiovascular pode ser um potencial fator de risco merecedor de maior atenção.

Bisphenol A and cardiometabolic disease

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Among other applications such as toys and cometic products, bisphenol A (BPA) is used as a monomer in the manufacture of polycarbonates (for reusable beverage bottles, infant feeding bottles, tableware and storage containers) and epoxy resins (for food and beverage cans and vats). The main route of human exposure to BPA is food as it is contaminated by the migration of BPA from packaging during processing or storage. A population-wide exposure to BPA has been suggested and a Tolerable Daily Intake (TDI) was recently updated to <0.2 ng/kg/day by EFSA (1). BPA has endocrine-disrupting effects and has been linked to worse health profile. The proposed mechanisms of BPA-induced multi-organ toxicity involve neuroendocrine system disruption, enzymes inhibition, modulation of immune and inflammatory responses, and genotoxic and epigenetic mechanisms (2).

Within the scope of the FOCAcCIa project (POCI-01-0145-FEDER-031949), in Portuguese 13-year-old adolescents from the population-based birth cohort Generation XXI, the median exposure to BPA was 29.4 ng/kg/day, far above the EFSA TDI. The group with the highest exposure to BPA presented a higher proportion of boys and a higher mean energy intake. These individuals were characterized by higher levels of body fat, waist circumference, insulinemia and triglyceridemia. After adjustment for confounders namely energy intake, those with higher exposure to BPA had 2.55 more likely to belong to a pattern of higher cardiometabolic risk. As such, a role of food contaminants in health should be considered beyond nutritional composition.

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Folic acid and iodine in pregnancy: the biochemical, metabolic and political perspectives

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Recent data point to a prevalence of between 20 and 30% of micronutrient deficiencies among pregnant women worldwide, and in developed countries the intake of folate, iron and vitamin D during pregnancy has been consistently described as being below recommendations.

Iron, iodine, folate, vitamin A and zinc deficiencies in pregnancy and childhood are the most prevalent micronutrient deficiencies and they present a significant burden to fetal growth and intellectual development, perinatal complications and increased risk of morbidity and mortality.

In addition to the importance of maternal nutrition as a determinant of maternal and child health, it is important to highlight its relevance in determining the health of offspring throughout life. The fetal programing hypothesis states that harmful stimuli occurring during intrauterine development irreversibly alter the fetal epigenome, consequently increasing the risk of disease in adulthood.

In this context, pregnant (mal)nutrition is now considered a potential fetal programmer of disease in the adult. At a time when longevity tends to increase, all the factors that contribute to ensure healthy aging, including pregnant women's nutrition, must therefore be carefully explored.

With this talk, we will explore the relevance of folic acid and iodine in pregnancy and in the long-term health programming from the biochemical, the metabolic and the political perspectives.

ROLE OF INCREASED APPETITE AND METABOLIC ADAPTATION IN WEIGHT LOSS AND REGAIN

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Weight regain is the main challenge in obesity management (1, 2), and its pathophysiology remains largely unexplained. Weight loss is accompanied by a significant reduction in total energy expenditure (TEE), driven by a decline in both resting and non-resting energy expenditure (EE). Some (3-6), but not all (7-9), studies report that the reduction in TEE, and/or its components, is greater than predicted, given the alterations in both fat mass and fat-free mass, a phenomenon known as metabolic adaptation (MA). Even though some have suggested that MA is an important driver of weight regain (10-13), the existence, and clinical relevance of MA remains one of the most controversial issues in Nutrition research (14-23). Despite a significantly reduced TEE, weight loss is followed by a persistent increase in the plasma concentration of the orexigenic hormone ghrelin and feelings of hunger (24, 25), suggested to drive weight regain (10, 12, 26). However, the role of appetite in modulating long-term weight loss maintenance remains controversial (15, 27, 28).

My research group has shown that the magnitude of MA is highly dependent on the energy balance (EB) status of the participants (17), being minimal (16, 17), if not completely absent (9), when measurements are performed under conditions of EB. Additionally, even though, we (29, 30), as well as others (31), recognize that MA during active weight loss might contribute to resistance to weight loss, my research group (16, 17) and others (5, 32, 33) found no evidence for a role of MA in promoting weight regain. We have also shown that increased appetite following weight loss is not a driver of weight regain (27), and likely reflects a normalization towards a lower body weight (34).

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FOODSERVICE: THE METHODOLOGY UNDERLYING PROJECT DEVELOPMENT

Eureka! E agora?

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O primeiro passo é compreender claramente a necessidade/problema que se pretende dar resposta e pensar em diversas ideias para o solucionar. Existem diversos métodos e estratégias para gerar ideias, e, numa fase inicial, não se devem julgar ideias, pois todas são válidas. Deve procurar obter-se ideias inovadoras, que são aquelas que, além de serem capazes de resolver o desafio/problema e de satisfazerem uma necessidade ou um desejo do público a que se destinam, geram valor para a organização. A fase de avaliação de ideias deve obedecer a critérios pré-estabelecidos e a sua seleção deve ser cuidadosa e pressupor uma pesquisa de mercado para avaliar se não existem ideias semelhantes.

A esta fase segue-se o desenvolvimento do projeto. Existem diferentes abordagens, que podem seguir requisitos normativos (ex.: ISO 9001 ou NP 4457), basear-se em modelos de gestão de projetos (ex.: *Waterfal, Agile, Scrum, Kanban*), ou ambos. A escolha da abordagem a seguir deve ser adaptada às necessidades, recursos e expectativas de cada projeto e organização. Para o sucesso do desenvolvimento do projeto e, consequentemente, dos resultados esperados, é importante manter envolvidas todas as partes interessadas relevantes que possam contribuir com ideias e conhecimentos.

Para desenvolvimento do projeto devem ser estruturadas as seguintes fases:

- Fase de iniciação, na qual devem ser claramente definidos os objetivos do projeto e a equipa responsável.
- Fase de planeamento, que pressupõe um plano detalhado no qual se inclui, entre outros, o cronograma, o orçamento e possíveis riscos.
- Fase de execução, que poderá envolver a criação de protótipos ou realização de testes piloto em pequena escala para validar a ideia.
- Fase de controlo e monitorização de resultados, na qual deve ser avaliado o progresso e ser definidas medidas para garantir o cumprimento dos objetivos.
- Fase de encerramento, na qual se avaliam os resultados e se analisa criticamente o processo.

Em sumo, para transformar uma ideia num projeto de inovação bem-sucedido, é necessário identificar e caracterizar a necessidade/problema, gerar ideias, escolher uma abordagem adequada e seguir todas as fases para a implementação do projeto.

BIOMA – Soluções Integradas de BIOeconomia para a Mobilização da Cadeia Agroalimentar

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O projeto "BIOMA - Soluções integradas de BIOeconomia para a Mobilização da cadeia Agroalimentar" é um projeto que resulta de um consórcio de 24 entidades empresariais e não empresariais do Sistema de Investigação e Inovação (ENESII), visando o desenvolvimento de um conjunto de soluções inovadoras que promovem bioeconomia no setor agroalimentar e a sua circularidade. O propósito do projeto é promover estratégias de sustentabilidade na cadeia de valor agroalimentar, elevando a sua competitividade a nível global. Neste sentido, o projeto BIOMA estrutura-se na sustentabilidade, desperdício alimentar, valorização de subprodutos e resíduos, rastreabilidade e digitalização da cadeia de valor. Nesta parceria, o ITAU tem vindo a colaborar no domínio do desperdício alimentar, através do desenvolvimento de uma plataforma modular "FoodSaver" e do estudo de conservantes naturais capazes de promover a extensão do prazo de validade dos alimentos.

A plataforma "Foodsaver" compreende quatro módulos: "Smart Procurement", "Smart Waste", "Smart Monitoring" e "Smart Education". O "Smart Procurement" com efeitos de promoção de consumos sustentáveis, através da consciencialização

e definição de critérios de seleção e aquisição de matérias-primas. Por sua vez, o "Smart Waste" e o "Smart Monitoring" são soluções inovadoras na monitorização e identificação do desperdício alimentar diário nas unidades de alimentação, bem como na sugestão de ações de melhoria com recurso a mecanismos de inteligência artificial. Quanto ao "Smart Education", este módulo permite sensibilizar o consumidor final para o desperdício e para os seus impactos, materializado numa aplicação para dispositivos móveis.

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SPARE: methodological lines

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A ferramenta informática SPARE+, é um instrumento concebido, planeado e desenvolvido pela Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto (FCNAUP) por solicitação da Direção-Geral da Saúde - Programa Nacional para a Promoção da Alimentação Saudável.

É competência do nutricionista garantir uma oferta alimentar adequada sob o ponto de vista alimentar e nutricional e de sustentabilidade, não descurando aspetos relacionados com o contexto sociocultural, a segurança e qualidade das refeições servidas, à luz das políticas e enquadramento legal em vigor. Dando resposta a esta competência, o SPARE+ permite planear refeições escolares de forma efetiva e organizada, de acordo com as principais recomendações alimentares e nutricionais nacionais e internacionais vigentes. A utilização regular desta ferramenta permite a avaliação, monitorização e verificação no sentido da melhoria contínua da qualidade das refeições escolares.

O SPARE+ pretende promover de forma abrangente a alimentação saudável e sustentável, focalizada no planeamento e produção de refeições adequadas e seguras de forma a fomentar estilos de vida saudáveis.

Com cerca de 10 anos de existência, esta ferramenta de acesso livre tem auxiliado a promover ambientes alimentares saudáveis e seguros.

Na sua 3.ª edição atualizou-se a tabela de composição nutricional dos alimentos, possibilitou-se o planeamento do jantar e ceia, sendo também possível proceder à avaliação da adequação nutricional das ementas planeadas para todas as faixas etárias.

Nesta última edição apresenta-se também uma nova lista de verificação de forma a possibilitar uma avaliação qualitativa das ementas, assente em critérios de sustentabilidade.

Mais completo, informativo e apelativo, o SPARE+ continua a ser uma ferramenta em construção em que os contributos dos seus utilizadores são fundamentais para a sua atualização permanente, ajustada à evidência científica mais recente e às necessidades dos nutricionistas.

SETTING DIETARY REFERENCE VALUES IN THE EU: THE EXAMPLE OF SODIUM AND RECENT DEVELOPMENTS IN TOLERABLE UPPER INTAKE LEVELS OF VITAMINS AND MINERALS

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Following a request from the European Commission, the European Food Safety Authority (EFSA) has been updating previous advice on Dietary Reference Values (DRVs) of energy, macro- and micro-nutrients, considering new scientific evidence and recent recommendations issued at national and international level.

The DRVs is an umbrella term for the complete set of nutrient reference values which include population reference intakes (PRIs), the average requirements (ARs) and adequate intakes (AIs). These values indicate the amount a nutrient must be consumed on a regular basis to maintain health in an otherwise healthy individual (or population). A total of 34 scientific opinions were published over 9 years, covering water, energy, macro-nutrients, 14 vitamins and 15 minerals and are summarized in a summary report (1) and in a web application (the DRV finder (2)). The last DRV Opinion referred to sodium intake. Evidence from studies on sodium balance and epidemiological investigations (experimental and observational) on the relationship between sodium intake and CVD risk lead to a safe and adequate level of sodium intake of 2.0 g/day, since this value relates with sufficient confidence to a reduced CVD risk in the general adult population, also allowing most of the general adult population to maintain sodium balance. Currently the EFSA Panel on Nutrition, Novel Foods and Food Allergies is working to set the tolerable upper intake levels (ULs) for nine vitamins and minerals. New UL for selenium intake has recently been set at 255 µg/day for adult men and women, based on the level of intake associated with increased risk of alopecia, an early observable feature and a well-established adverse effect of excess selenium exposure and taking into consideration evidence on association between high selenium intake and risk of type 2 diabetes (3). The Opinion on vitamin D UL is currently under public consultation (4).

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SHAPING FOOD FOR TOMORROW TODAY

O papel da inovação de produtos alimentares no sistema alimentar em evolução

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Há um claro reconhecimento de que o atual sistema alimentar europeu gera uma série de resultados ambientais, sociais e de saúde humana que não são sustentáveis. Em resposta a isso, a UE e seus Estados-Membros estão a rever profundamente a Investigação e Inovação e as opções políticas mais amplas que podem levar a uma transição bem-sucedida para um modelo sustentável.

Muitas mudanças estão a ser implementadas e propostas que envolvem alternativas ao atual modelo agroalimentar e muitas delas certamente terão papéis importantes no futuro. No entanto, também é verdade que grande parte do setor alimentar que tem como negócio o processamento e comercialização de produtos alimentares embalados também será importante no futuro e, de facto, poderá dar grandes contributos para melhorar a saúde e a sustentabilidade. A resposta global aos desafios enfrentados pelo sistema alimentar representa um contexto no qual os produtos alimentícios do futuro funcionarão e também um novo conjunto de oportunidades para as empresas de alimentos projetarem novas gerações de produtos e serviços.

How clean is clean label?

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"Clean label" is a broad concept that has evolved over time: from natural and organic, to free from additives and allergens, nutritionally improved, and to environmentally and socially responsible products. It may involve several contradictions (e.g., gluten free but with a long, complex ingredient list; or small list of ingredients but very high in sugar).

Additives provide important functionalities to foods, making them more pleasing, stable and/or convenient. An additive is not necessarily harmful despite several food additives having some potential negative impacts on health, and therefore having regulated safe levels [EFSA, nd; European Union, 2008]. Nevertheless, free from additives is well sought by consumers.

The natural versus synthetic fight is also not straightforward. A synthetic ingredient may be cleaner (more pure, uncontaminated) than an ingredient of natural origin. Yet again, natural is well perceived by consumers.

All this broadness and contradictions can be confusing to the food industry.

cLabel+ is an R&D project focussed on innovative natural, nutritious and consumer-oriented clean label food. Promoted by a consortium of 20 entities, it comprises 5 industrial partners: Sumol+Compal (fruit-based beverages); Mendes Gonçalves (sauces and dressings); Frulact (fruit preparations); PRIMOR (cold meats); Vieira de Castro (biscuits and confectionery). The aims were sugar, fat and salt reduction; vegan and vegetarian alternatives; fibre enrichment; natural extracts preservatives and natural colours, amongst others. The objectives were achieved through a combination of ingredients and processes. Investigated ingredients included yacon, lupin, fava beans, edible flowers, beetroot, oat coproducts, yeast, liquorice, amongst others. Investigated processes included High Pressure Processing, sugar Particle Size Reduction processes, fermentation, enzymatic treatment, ultrasound emulsification, centrifugal decantation and tangential filtration.

Nutritionally improved products were developed (Figure 1), some of which already on the market.

Shaping food for tomorrow should focus on creating healthy, safe, nutritionally improved, sustainable and transparent products. By embracing these principles, the "clean" aspect of those food products will naturally emerge.

FIGURE 1

Some cLabel+ project products

1) cloudy fruit juice (Sumol+Compal); 2) sugar coated almonds with natural colourant (Vieira de Castro); 3) strawberry preparation with 50% reduction in sugar and its incorporation into natural sugar-free yoghurt (Frulact); 4) vegan and low-fat mayonnaises (Mendes Gonçalves); 5) vegan ham-like product (PRIMOR) and 6) cold meats PURO collection with ingredients of natural origin (Primor).

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Retail food environments in promotion of nutrition and health

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Which do you believe is the most important: to produce enough nutritious, affordable food for every person, or protect the future of our planet? European Commission believes that we shouldn't have to choose. Farm to Fork Strategy is has a main goal to transform how we produce, distribute, and consume and retailers are at the heart of its implementation.

The presentation has the objective to promote the reflection about the role of Retailers regarding a more sustainable and healthy diet.

CROSSTALK BETWEEN NUTRITION AND METABOLISM IN CLINICAL PRACTICE

Endocrine alterations in bariatric surgery: where do we stand

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Obesity is associated with a higher prevalence of endocrine conditions that can be either the cause or more frequently the consequence of excessive body fat (1). Obesity-driven hormonal imbalances can be restored by weight loss (2). Bariatric surgery reverts a significant proportion of obesity-related endocrine disorders and most particularly type-2 diabetes (T2D) (3). Moreover, bariatric surgery was shown to have significant effects on glucose metabolism even before any significant weight loss has occurred (4), drawing attention to underlying endocrine mechanisms (5). The neuroendocrine anatomy of the gastrointestinal tract is in the core of energy homeostasis, with several hormones involved in metabolic control, such as Glucagon like peptide 1 (GLP-1), GIP (glucose induced insulinotropic peptide) and neurotensin (NT) (6).

Surgical interventions entailing gastrointestinal tract anatomical modifications alter the gastrointestinal hormone profile (7). Even small anatomical variations of a single bariatric procedure, such as the Roux-en-Y gastric bypass (RYGB) biliopancreatic limb length (BPL) have a significant impact on gut hormone secretion (8). In fact, the metabolic RYGB (RYGB-M) with a longer BPL results in higher fasting and post-prandial GLP-1 and NT, and lower insulin and GIP, as compared to the classical procedure (RYGB-C)(8). Additionally, with RYGB-M results in higher post-prandial acetate levels than RYGB-C, also contributing for distinctive metabolic outcomes (9). Furthermore, malabsorptive bariatric surgery procedures, namely biliopancreatic diversion with duodenal switch (BPD-DS) and single anastomosis duodenal–ileum bypass with sleeve gastrectomy (SADI-S), also results in different endocrine and metabolite profiles when compared to each other and to other procedures, such as RYGB (10-11).

These findings suggest that metabolite and hormone profiles could not only provide a rationale for choosing between bariatric procedures, but also that surgical interventions could be fine-tuned in order to achieve the most positive impact on body weight and metabolism as an approach towards precision medicine (3, 12).

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Can probiotics be an ally in post-metabolic surgery intervention?

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Bariatric surgery (BS) is an effective treatment for severe obesity. Among the different mechanisms underlying the beneficial effects of BS, changes in the intestinal microbiota have been identified as one of the fundamental factors for metabolic control. However, recent studies suggest that the intestinal microbiota is not fully restored after the surgery. Therefore, strategies such as supplementation with probiotics may contribute to a better balance in this set of microorganisms' communities and, consequently, to an improved long-term health status, after the surgery. Previous studies in this field have shown conflicting results on the percentage of excess weight loss ranging from clinically significant to no impact. It was also shown an improvement in insulin levels and gastrointestinal quality of life. Nonetheless, studies are very scarce with high heterogeneity between them. Therefore, further well-designed randomized controlled trials are required to clarify the effect of probiotics after BS, possibly exploring a new generation of probiotics based on a better understanding of the mechanisms of action of commensal bacteria on the host. Hafnia alvei strain is less abundant in obesity and could be a potential candidate for the treatment based on its capacity to synthesize caseinolytic protease B protein (ClpB) – a chaperon that is decreased in obesity that stimulates satiety mechanisms. Currently, Hafnia alvei HA4597™ is being tested, by our group, in subjects with obesity after Roux-en-Y gastric bypass in a randomized, triple-blinded, placebo-controlled clinical trial to evaluate the effect on weight loss and metabolic control 1 year after the surgery. This can contribute to the identification of the risk/benefit ratio of this strain as an adjunctive treatment in the maintenance of metabolic and weight control and validate the mechanisms of action of this probiotic in obesity management.

Changes beyond weight loss in dietary interventions for obesity – an adipose-centric view

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Obesity is a rising threat to public health and welfare, being its management and treatment a continuous challenge. From a clinical point of view, an important question is whether weight loss should be the focus in obesity management. The weight-centric thinking is the conventional and maybe outdated approach that suggests weight and weight loss are the primary determinants of health. However, weight loss is hardly sustained, indicating that this weight-centric approach to obesity treatment has been ineffective. Considering the cardiometabolic health

markers as pivotal nutrition care indicators in the assessment of the success of obesity management, instead of being based solely on the amount of weight lost, might be a step forward to a more individualized patient-centred approach. Besides, one undeniable fact is that adipose tissue plays a prominent role in the pathophysiology of obesity. Adipose tissue dysfunction, reflected by changes in adipokines concentrations seems to be an early signal in obesity and a critical factor for its metabolic consequences. An altered adipokine secretion pattern triggers adipocyte dysfunction, unresolved inflammation, and metabolic impairment of insulin-sensitive tissues.

In this sense, the early identification of individuals at higher risk of developing metabolic complications through adipose tissue dysfunction assessment and the staging of obesity and its transient phenotypes could help to optimize the management of the disease, reduce its incidence, and mitigate the burden of disease in people living with obesity.