NOV 2017

PFNDAI Bulletin

FOOD, NUTRITION & SAFETY MAGAZINE

FLAVOUR MASK-ERADE

Also Inside

Antibiotic Resistance Crisis & Management:

Report on Nutrient & Health Claims of Food Products

PROTEIN FOODS AND NUTRITION DEVELOPMENT ASSOCIATION OF INDIA

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EDITORIAL

Many governments are planning ban on plastic. Plastic waste is creating a lot of problems. As it is not biodegradable the waste plastic which is thrown away causes pollution and at times is consumed by animals, which gets accumulated in their stomach. It also creates clogging of running water and may choke gutters causing water logging. It has plasticisers which also causes harmful effects when ingested. Some chemicals may cause skin problems.

However, there are also many advantages of plastics. It is used in construction industry as building blocks and as fixtures. They are useful because of their resistance to corrosion and property of insulation to heat and electricity. It is also used in packaging because of its versatility, durability, flexibility, rigidity and light weight. It is shatterproof as opposed to glass and ceramic. It is also used in vehicles and even in airplanes because of its lightness.

The problem arises because of improper disposal. There is hardly any recycling done. In food industry abroad many food manufacturers give incentives to consumers bringing back the used bottles etc. There is a good system of waste plastic collection and sorting. The consumers with a sense of responsibility put the waste material in proper bins so disposal and/or recycle is easier.

There is one bad trend from abroad which we have started adopting and that is excessive packaging material. Even for small things there are extra packaging done either from damage prevention, pilfer proofing, or for aesthetic purposes.

Consumers have started asking for carry bags for everything. When they buy fruits and vegetables, other grocery and any goods, they ask for carry bags. Some shops provide carry bags with large printing which serves as advertising for them. Earlier shoppers used to carry their own shopping bags when they go for shopping but now they go out empty-handed and want carry bags even for small things.

Government tried to ban the carry bags of certain thickness as they were quite cheap to give out free. They also tried to force shops to charge carry bags a price to deter shoppers from asking for carry bags. Both these were not successful as there wasn't a consistent enforcement and monitoring.

Another problem started when people preferred to buy things like cosmetics and food products like candy and mouth fresheners etc in single use sachets. These could also be carried easily so they could consume them and throw away the empty package. This created a lot of problems as disposal was everywhere.

The answer to the problem is not banning plastic altogether but enforcing proper disposal and giving facility and reward for collection. There should be very strict monitoring and enforcement of law against littering. Plastic is extremely useful and we should use it and dispose it sensibly.

Prof. Jagadish S. Pai,
Executive Director
executivedirector@pfndai.org

FLAVOUR MASK-ERADE

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Fast-pace of today needs breakfast on-the-go or in-between snacks for various ages that need foods providing health, increased energy and get them through the day. Besides all this, these foods not only must be good for them but also taste good.

Many ingredients are used today providing desirable physiological benefits but they have a lot of flavour problems. Soya proteins have been used as nutritional ingredients for long. They have been able to reduce soya's beany taste but when using high amounts there will be favour effect.

Botanicals are ingredients derived from plants with functional properties. Some of the examples are ginseng, ginkgo biloba, echinacea and St John's wort which are considered in the nutraceuticals arena. There has been tremendous growth in herbal market because of their health benefits. Most of them have flavour issues such as tea-like to grassy, bitter, medicinal, and even astringent. They need a lot of attention to ensure a palatable final product. Many of the ingredients used for weight-loss applications such as EGCG (epigallo-catechin gallate), hydroxy citric acid etc. that are used for satiety benefits can cause bitter or astringent notes in the mouth. Another example is herb valerian extract having the active ingredient valeric acid that relieves stress and brings a sense of calm has an odour that is described putrid.

Growing number of people are turning to functional foods including minerals such as magnesium, calcium and zinc for bone health, prostate and immune health and for anti-stress effects. Some of the minerals such as iron, copper and potassium added for nutrient value as well as to reduce sodium, have metallic notes. Calcium gives off-flavours that vary with source. Calcium carbonate gives soapy or citrus notes, while calcium citrate contributes acidic flavour. Calcium chloride imparts bitterness to the product.

Many vitamins are also added to functional foods. Some of the B vitamins add undesirable taste that becomes pronounced over time. Some vitamins like B1 imparts bitter taste and sulphurous egg aroma.

Fat goes fishy

Polyunsaturated fatty acids (PUFA) are essential for human health. These are divided into two groups namely omega 3 fatty acids including alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) and the omega 6 fatty acids including linoleic acid (LA), gamma-linolenic acid (GLA) and arachidonic acid (ARA).

Fortifying food products using PUFA is one of the greatest fortification challenges to developers as these nutrients often impart a fishy odour and/or flavour. While marine origin may explain this fishy flavour effect, it is not just associated with marine origin. These fatty acids are highly unsaturated so they are prone to oxidation very easily and become rancid at room temperature. Due to oxidation they form peroxides which upon degradation form various compounds with objectionable odour and taste. Minimising oxidation of the fats with these highly unsaturated fatty acids is a challenge.

The great masquerade

Flavour masking is more complex than simply covering one taste with


Image © iStock.com/bopav

another as taste is a complex sensation by tongue affected by many chemical and physical factors. Flavour of a food is a combination of effects including smell and taste.

We perceive sweet, sour, bitter, salty and umami response. Smell refers to our response to aromatic elements of food. Somato-sensation is how we feel the food. It is affected by texture attributes of a product, as well as the heating sensations provided by ingredients like capsicum or cooling by menthol. The balance of these effects creates the perception of flavour that is pleasant. Adding nutritional or healthy ingredient to a given product can upset the balance, creating unexpected and often undesirable flavour effect.

Traditionally flavourists used to counter these off-notes with high-sweetness flavours like chocolate, vanilla and strawberry. Vanilla is one of the best masking agents available. The increased demand for a range of choices of food products having attributes like high-carbohydrates, low-fat, diet, low-carbohydrates/low-fat, meal-replacement and nutritional-supplement drinks, has created the need for a range of masking agents, modulating flavours and characterising flavours to take care of needs of the particular beverage segment.

Aspartame and acesulfame-K, both roughly 200 times sweeter than sucrose, may be used together for masking applications. However, process must be considered while using the combination as aspartame will degrade and lose sweetness when heated for long. Acesulfame-K is stable during heating and subsequent storage.

More than meets the tongue

Flavours must be designed for products that have that are compatible and complementary to the end-product. For example, choosing a nut flavour for soy-protein enhanced snack, where part of nut flavour comes from soy ingredient and complements the overall taste delivery.

Earthiness of botanicals can be neutralised by adding fruit flavours like grape or pineapple. More intense off flavours may be overcome by modifying masking agents. A pineapple flavour system may be enhanced by adding furaneol (also called "pineapple furanone" or "strawberry furanone") or hexenal that creates fresh, creamy, sweet notes that tempers grassy, earthy notes associated with vitamins and proteins.

Adjusting the acid profile in a fruit flavour system also helps. Lactic acid and malic acid help fruit flavour tartness linger, providing more time for undesirable taste to dissipate unnoticed.

There are substances used that are designed to adjust perception of a given ingredient by consumer. Taste modifiers are flavour ingredients having little or no taste or smell of their own, but may complement, enhance or otherwise modify the flavour of a food in many ways. They may be known as masking agents, flavour enhancers and in some cases taste inhibitors.

There are some products that are designed to reduce acidic flavour notes without pH change, to reduce perception of saltiness, sweetness and even the astringency perception. Others are used to mask bitterness, green or grassy notes, off flavours (like potassium salts), metallic or chalky aftertastes, off-flavours of vitamins and those beany flavour notes related to soy.

Functionality of taste modifiers varies with level of taste perception on which they impact. There are four mechanisms of action namely adaptation, cross-adaptation, taste blocking and taste modifying.

Adaptation is actually a form of fatigue. Continuous exposure to a given taste diminishes the ability to perceive that taste. Adaptation to a single taste can lower or in some cases increase the threshold for perception of another taste. This is called cross-adaptation.

Taste blocking uses particular compounds to suppress the ability to sense some or all flavours. Cloves for example can be used as an oral anesthetic. Taste modification occurs when a substance causes an altogether different perception of a given material. Miraculin is a glycoprotein obtained from berried from West Africa. It has no taste of its own but it will cause tongue to cause sour materials like citric and ascorbic acids to taste sweet.


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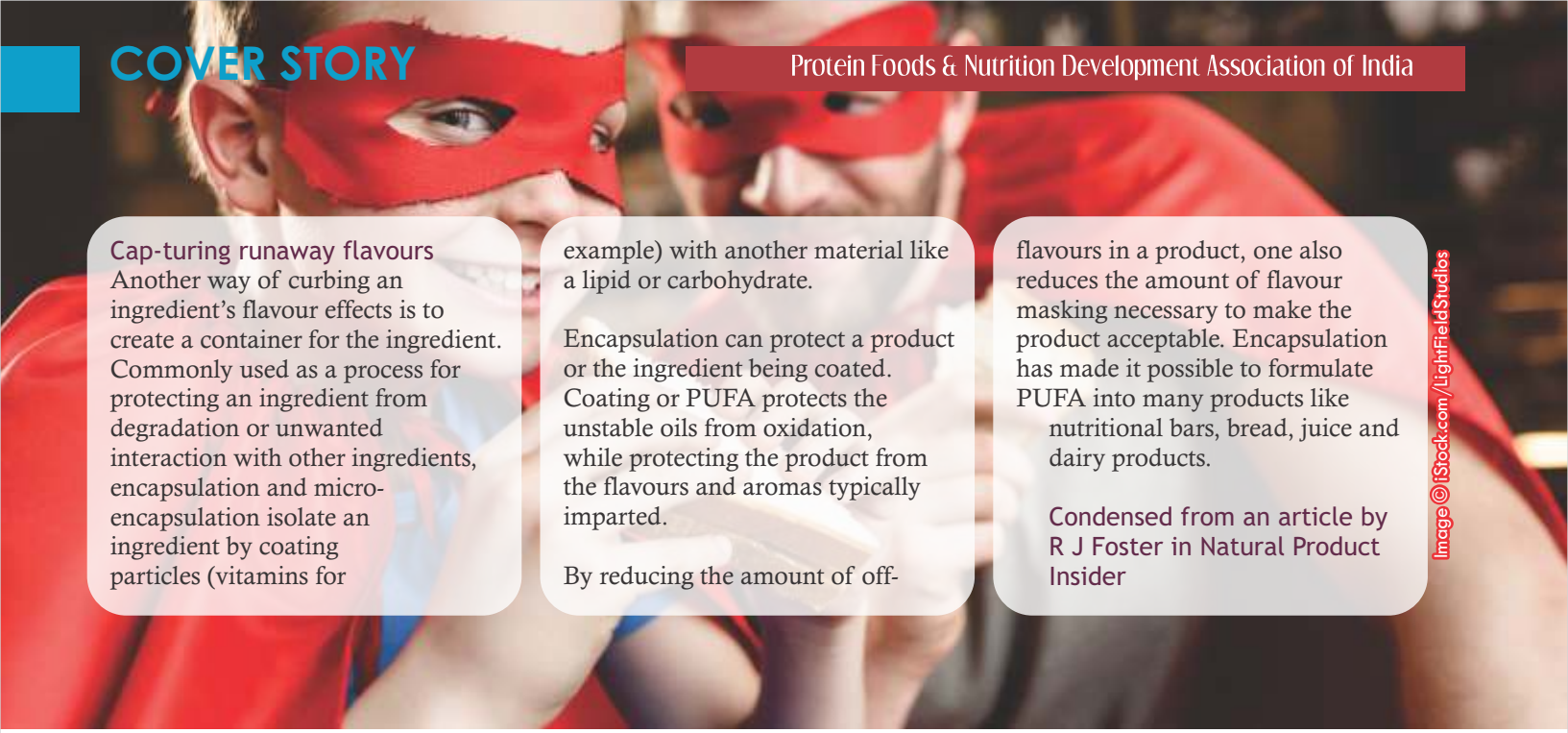
INDIA'S PROTEIN-DEFICIENCY.

Recent survey suggests that 73% of Indian diets are protein-deficient*. Part of the reason lies in the insufficiency of protein content in conventional protein sources such as eggs, lentils, meat, milk etc. Moreover, the steep cost (per 100 gms of protein) of these sources further makes it difficult for families to fulfil their daily protein need. We at Ruchi Soya; the makers of Nutrela Soya Chunks & Mini Chunks and Soya Granules, help consumers bridge this gap by providing the richest source of protein at the most affordable price. Soya contains 52% protein which is significantly above the protein content in eggs, lentils & milk all put together. We urge you to make soya an integral part of your diet recommendations. Let us join hands to help India say a GOODBYE to protein-deficiency!

FOOD	Approx Protein% /100gm	Approx Price/100gm
NUTRELA SOYA CHUNKS	52	9
DAL	25	10
MEAT	22	45
PANEER	19	32
EGG	14	12

www.nutrelahealth.com www.facebook.com/nutrela

*Source: The Times of India, July 2017



Cap-turing runaway flavours

Another way of curbing an ingredient's flavour effects is to create a container for the ingredient. Commonly used as a process for protecting an ingredient from degradation or unwanted interaction with other ingredients, encapsulation and micro-encapsulation isolate an ingredient by coating particles (vitamins for example) with another material like a lipid or carbohydrate.

Encapsulation can protect a product or the ingredient being coated. Coating or PUFA protects the unstable oils from oxidation, while protecting the product from the flavours and aromas typically imparted.

By reducing the amount of off-flavours in a product, one also reduces the amount of flavour masking necessary to make the product acceptable. Encapsulation has made it possible to formulate PUFA into many products like nutritional bars, bread, juice and dairy products.

Condensed from an article by R J Foster in Natural Product Insider

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COMING EVENTS

Workshop on Capacity Building Food Regulatory Process
Responding to Regulatory Notifications
Protein Foods & Nutrition Development Association of India
March 7-8, 2018
Hotel Kohinoor Continental
Andheri Kurla Road, Andheri East
T: 022-2353 8858/8998
E: foodscientist@pfndai.org

Anuga Food Tec
March 20 - 23, 2018
Location: Cologne, Germany
T: +49 1806 578 866
E: anugafoodtec@visitor.koelnmesse.de
W: www.anugafoodtec.com

India Expo Beurs, Netherlands
March 29 - April 2, 2017
De Broodfabriek Event Zall,
Ruswuk/Den Haad, Netherlands
Contact: India Trade Promotion Org
T: 011-23371688
W: meenukapur@itpo.gov.in

F&B Pro World Expo
Expo & Conf in Mumbai & Goa
May 11-13, 2018
World Trade Centre, Cuffe Parade, Mumbai
Aug 2-4, 2018
Dr Mukherjee AC Indoor Stadium, Panaji
M: +91 9769555657
E: trinity.cmd@gmail.com

World Mithai & Namkeen Convention 2018
Federation of Sweets & Namkeen Manufacturers of India
February 10, 2018
New Delhi
T: +919930275404
E: mahdi@advanceinfomedia.com

3rd Nutraceutical and Functional Food
Asia Pacific Summit & Exhibition 2018
June 6-8, 2018
in Singapore
T: +86 21 55800330*8006
W: +86 21 55800309
E: marcia.liu@duxes.cn

IFT 18
A Matter of Science + Food
July 15-18, 2018
Chicago, IL, USA
W: Iftevent.org

21st World Congress on Nutrition & Food Sciences
July 09-10, 2018
Sydney, Australia
E: worldnutrition@conferencesworld.org

IUFoST 2018 India
World Congress of Food Sci & Tech
October 23-27, 2018
Mumbai
W: https://www.iufost2018.com/index.php

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ANTIBIOTIC RESISTANCE CRISIS & MANAGEMENT:

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Antibiotic Resistance Crisis & Emergence of resistance bacteria is occurring worldwide, lowering the efficacy of antibiotics that have saved millions of lives.

After decades of being successfully treating patients with antibiotics, bacterial infections have again become a threat. The present crisis is mostly due to overuse and misuse of these medications. Also new drug development has been slow due to reduced economic incentives and challenging regulatory requirements.

A number of bacteria have been classified as presenting urgent, serious and concerning threats. Many are already responsible for placing substantial burden on health care system, patients and their families. Great efforts are necessary to manage the crisis.

Modern era of antibiotics started with the discovery of penicillin by Sir Alexander Fleming in 1928. Penicillin successfully controlled bacterial infections among World War II soldiers. Soon afterwards penicillin resistance became a problem so by 1950s many advances were threatened.

Consequently new beta-lactam antibiotics were discovered and used, restoring confidence. However, cases of methicillin-resistant S. aureus (MRSA) were identified in 60s.

Resistance has eventually been seen to most antibiotics. From late 1960s to early 1980s many new antibiotics were introduced but after that fewer new drugs were introduced. Thus after decades the bacterial infections have become a threat.

Benefits of Antibiotics

Antibiotics have not only saved lives of patients but have helped in major advances in medicine and surgery. They have prevented or treated infections in patients receiving chemotherapy, those with chronic diseases such diabetes, end-stage renal disease or rheumatoid arthritis or in organ transplants, joint replacements or cardiac surgery.

Antibiotics have extended life spans all over, in the US from about 56 in 1920 to about 80 in 2000. It has similar benefits worldwide. In developing countries antibiotics decrease morbidity and mortality caused by infections.

Causes of Antibiotic Resistance

Overuse of antibiotics clearly drives evolution of resistance. There is direct epidemiological relationship between antibiotic consumption and the emergence and dissemination of resistant bacterial strains. Genes are inherited through transfer of mobile genetic elements plasmids which allows transfer among different species of bacteria.

Resistance can also occur through spontaneous mutation. Antibiotics destroy drug-sensitive competitors leaving resistant bacteria which produce resistant line. In spite of warnings, antibiotics are overprescribed.

Incorrectly prescribed antibiotics also promote of resistant bacteria. Choice of agent or duration of therapy is incorrect in many cases. Antibiotic may be unnecessary, inappropriate or suboptimal. This may have questionable benefits and expose patients to potential complications. Suboptimal concentrations can promote development of antibiotic resistance by supporting genetic alterations, such as mutagenesis.

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Antibiotics are also widely used as growth supplements in livestock. In the US 80% of antibiotics sold are used in animals primarily to promote growth and to prevent infection. Treating animals with antimicrobials is said to improve the overall health of the animals, producing larger yields and a higher-quality product.

Antibiotics used in livestock are ingested by humans when they consume food. The transfer of resistant bacteria to humans by farm animals was noted 35 year ago when they were found in intestinal flora of both farm animals and farmers. Resistant bacteria from farm animals reach consumers through meat products. Antibiotic use in food producing animals kills or suppresses susceptible bacteria allowing resistant bacteria to survive. These are then transmitted to humans through food supply causing infections in humans leading to ailments.

Agricultural application of antibiotics also affects the environmental microbiome. Up to 90% of it is excreted in urine and stool which then is widely dispersed through fertilizer, ground water and surface runoff. Also tetracyclines and streptomycin are sprayed on fruit trees as pesticides. Although the amount may be low but the resultant spread is considerable. Antibacterial products used for hygienic and cleaning purposes also contribute to the problem.

Availability of Few New Antibiotics
Earlier new antibiotics would be developed before the earlier ones developed resistance. However, as developing and testing of antibiotics has become very difficult due to expenses involved as regulatory authorities want antibiotics to be thoroughly tested for safety. Thus new antibiotics have substantially reduced in number and many pharmaceutical companies have abandoned antibiotic field due to commercial reasons. They find drugs for other diseases are more profitable as the treatments are longer. Adding to this is the problem of development of resistance making it ineffective.

Control

There needs to be coordinated efforts to manage this possible crisis. There is a need to collect global data on antibiotics and resistance. There is also a need to prevent antibiotic abuse in humans as well as animals. This is a huge task and needs creating awareness among health professionals, consumers, veterinarians, farmers and the industry using the animal products.

Agricultural use is a huge source of resistance and could be managed first by stopping use of antibiotics for growth promotion. It has been shown in Denmark that after banning growth-promotional antibiotics for livestock there was no disaster but an increase in animal production. Awareness certainly works but in a developing country where farmers are not educated, it will take some time to bring about the management and control.

Prepared using articles by 1) C Lee Ventola, Pharmacy & Therapeutics April 2015 & 2) B Spellberg & DN Gilbert, Clinical Infectious Diseases 2014


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REPORT ON NUTRITION & HEALTH CLAIMS OF FOOD PRODUCTS

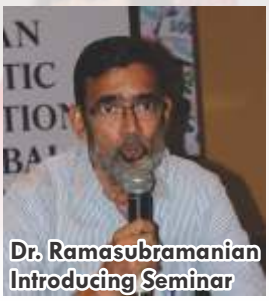
A seminar on Nutrient & Health Claims of Food Products was organized by Protein Foods and Development Association of India on November 8, 2017 at Courtyard Marriot, Mumbai.

The seminar was sponsored by:

- Hindustan Unilever Limited
- DuPont
- Parle


Mr. Bhupinder Singh Inaugurating Seminar

The inaugural session started with a welcoming note by Mr. Bhupinder Singh, Chairman, PFNDAI & MD, Vista Processed Foods. He outlined the objectives of the seminar and also discussed various aspects of the Claims on the Food Products giving its importance.


Dr. Ramasubramanian Introducing Seminar

Dr. N. Ramasubramanian, Director, VR Food Tech gave a brief introduction about the seminar. He spoke about the scope of Health and Nutrient Claims and that the seminar was organized to share a better and a thorough understanding about these Claims.

Dr. B. Sesikeran, Ex- Director, NIN, President, NSI addressed the crowd about how claims play a major role among consumer's selection of product. He also added why at all is there a need of claims on food products and its significance.


Dr. Sesikeran

Finally, Mr. Sailesh Venkatesan, Vice Chairman, PFNDAI & MD, Mead-Johnson; concluded the inaugural session by giving positive remarks to start the proceeding sessions by the eminent speakers who were present to put more light on the subject of the seminar.


Mr. Sailesh Venkatesan Proposing Vote of Thanks

The first session underlining Claims-Global View was chaired by Mr. V. Mohan, Partner Inttl Advocare. He interacted with the crowd sharing his point of view regarding the subject.


Mr. Mohan Chairing

Inaugural Session

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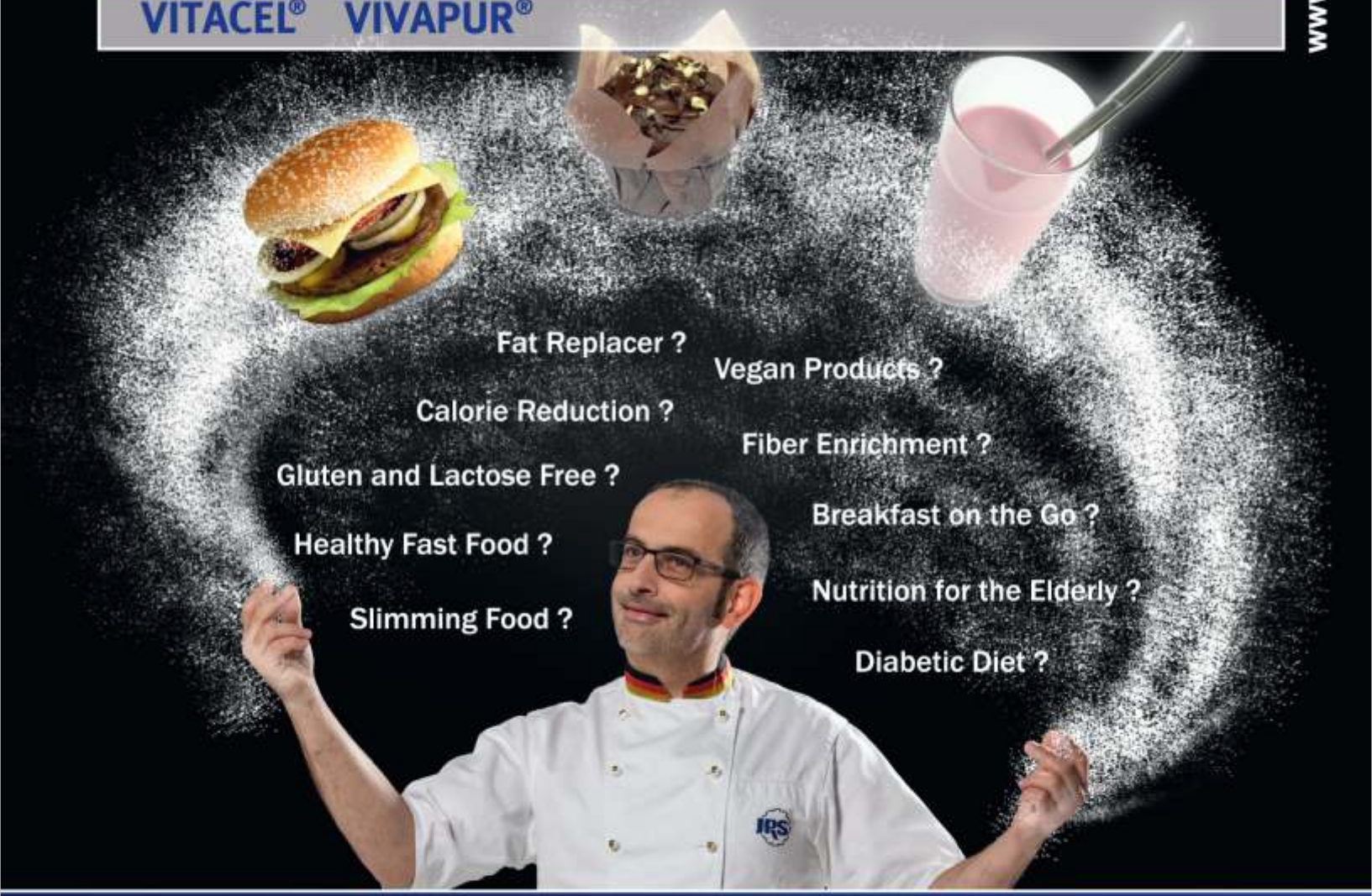

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Phone- 022 40243821

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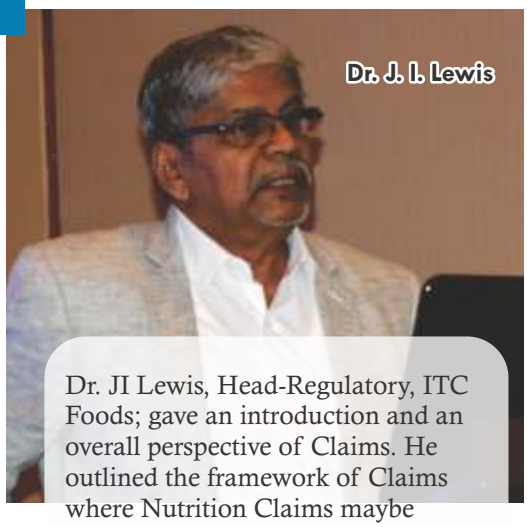


Dr. JI Lewis, Head-Regulatory, ITC Foods; gave an introduction and an overall perspective of Claims. He outlined the framework of Claims where Nutrition Claims maybe about nutrient content or nutrition comparative one. On the other hand, Health Claims specify about the nutrient function, other beneficial effects and disease risk reduction. He differentiated between the Claims spectrum- Nutrient Content, Nutrient Comparative, Statement of fact, which is not a nutrient content Claim, Dietary Guidelines, Nutrient Function, Other function and Disease risk reduction. He added, that the Nutrient Claims shall not be proposed to prevent but to cure a disease or a health related condition. He also discussed the Clarity of the Evidence and Claim acceptance Processes.

Mr. K.K. Joshi, Head- Regulatory, ITC Foods; defined Nutrition Claim and explained why is there a need for Nutrition Claim. He discussed how consumers get the Claim information via Education, Media & Advertisements and Food Product Labels. He added, when a nutrient content claim that is approved/listed or a synonymous claim is made, the conditions specified in the national/ international legislation for that claim, should apply. Also, when a Nutrient comparative claim is made, the food shall be different versions of the same food or similar food being compared and shall be clearly identified. He gave a gist about the Indian & Global Scenario of Nutrition Claims. He highlighted on certain relevant provisions of Claims from Food Safety and Standards. He notified about the FSSAI's process of harmonizing the FSS Standards for regulating the Claims. He listed out certain Prohibited Claims. Further, he mentioned about the trending EFSA- European Food Safety Authority.

The second session emphasized more on Health Claims which was chaired by Mrs. Shilpa Telang with full enthusiasm to hear the perspective of the eminent speakers on specific topics.

Dr. Jasvir Singh, Regulatory, Scientific and Government Affairs Leader- South Asia, Dupont; gave an overview on Structure-Function Claims. He discussed about some special regulatory requirements and procedures for structure/function claims established by the Dietary Supplement Health and Education Act of 1994 (DSHEA). He explained about Function Health Claims, Risk- reducing Claims and Claims referring to Children's Development. He added, "Health claims" means any representation that states, suggests or implies that a relationship exists between a food or a constituent of that food and health and includes nutrition claims which describe the physiological role of the nutrient in growth, development and normal functions of the body. "Nutrition claim" means any representation which states, suggests or implies that a food has particular nutritional properties which are not limited to the energy value but include protein, fat carbohydrates, vitamins and minerals. He also talked about various possibilities in the future of Indian Scenario of Health and Nutrition Claims.

Dr. V. Sudershan Rao, ex- Dy Dir, NIN & Chairman, Additives Panel, FSSAI; talked on Disease Risk Reduction Claims. He mentioned the top ten diseases that are the causes of deaths in India. He gave an insight of the Disease Risk reduction definitions given by different bodies and countries. Health claims describe a relationship between a food substance (a food, food component, or dietary supplement ingredient), and reduced risk of a disease or health-related condition. (US FDA). He talked about different types of Health Claims. He focused on certain standards and regulations of FDA and US FDA regarding Health Claims. He emphasized on structuring of Health Claims and their conditions.

Dr. V. Sudershan Rao, further presented on Claim Substantiation where he discussed about the Essentials of a Claim. He said that a claim should be clear in understanding, should be accurate and shall be based on scientific


Dr. B. Sesikeran

evidence.

He gave the definition of Health Claims and listed its essential components- one being nutraceutical ingredients and other being health related benefits. He described the process and the criteria for the substantiation of Health Claims given by Codex. He focused on Product led Health Claim, Measurement of Claimed effect and Food safety concerns. He concluded by adding that Substantiation is a basic requirement of making a Health Claim. Observational studies or studies in animal models or in vivo and in vitro studies are not sufficient for substantiation of a health claim.


Ms. Rini Sanyal

Ms. Rini Sanyal, Head, Worldwide Regulatory, Govt & industry Affairs, Herbalife; presented on Claims under Food Supplement/ Nutraceutical Regulation. She covered how Claim Regulation protects consumer needs. Claiming too much, or if a claim is not properly substantiated, wrongly compared or not supported by enough scientific evidence makes the claim wrong or misleading. She addressed that Claims necessary to market a product in the competitive market may not be always truthfully placed or properly substantiated. She also covered certain details on Food Claims under the FSS Act. She shared her ideas to have a right interpretation of the framework, to understand science and innovation, to not be restrictive just to trade in Regulating Food Claims.

The next session on Techno-Legal aspects of Claims was chaired by Dr. B. Sesikeran where he shared the knowledge of purpose of a Claim and its legitimate and illegitimate meaning. He discussed about various types of Claims and why were health claims allowed at all? He briefed about Scientific evidence and Evidence based review system. Further he put an insight on the studies that evaluate substance/ disease relationship.


Dr. Shatadru Sengupta

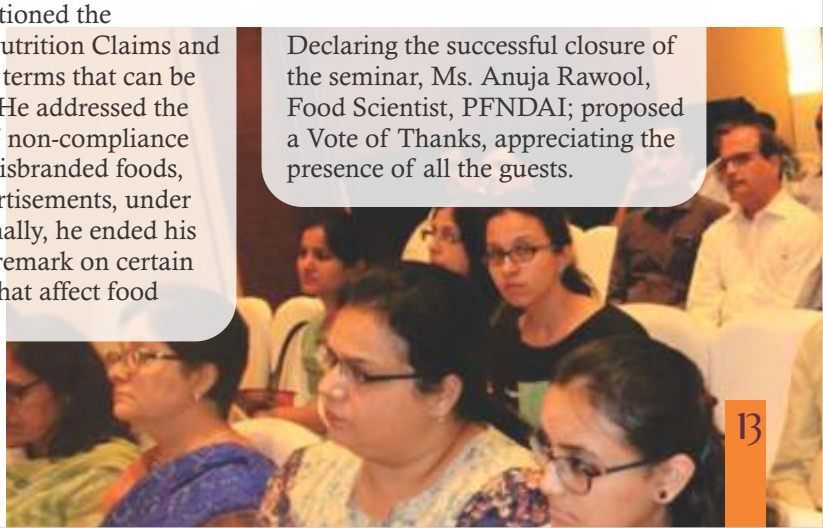
Dr. Shatadru Sengupta, Director-Legal, Hardcastle Restraunts; mentioned about the laws specific to Food Claims in the Food Safety and Standards Act, 2006. He also discussed about the linkage between Claims and Misbranding. He gave some important definitions regarding Claims and their different types. He talked about Risk Analysis and Management in relation to Claims suggesting to Know Your Claim (KYC) and certain Do's and Don'ts in relation to Claims. He shared the 9 General Principles for FBO's making Claims. He mentioned the conditions for Nutrition Claims and certain identical terms that can be used in Claims. He addressed the consequences of non-compliance (false claims), misbranded foods, misleading advertisements, under the FSS Act. Finally, he ended his talk by giving a remark on certain Non-food laws that affect food claims.

After a wonderful talk by all the speakers, a Panel discussion was set up whose members were Dr. JI Lewis, Dr. Prabodh Halde, Head, Regulatory, Marico; Ms. Richa Mattu, Head, Nutrition, South Asia, Hindustan Unilever; DR. Ramasubramanian; Mrs. Shilpa Joshi, Nutritionist & Director Mumbai and Health Care; Mr. Pramod Deodhar of MGP; Dr. Sunil Bhagwat, HOD Chem Engg, ICT, Mumbai & ASCI CCC Member. An interactive discussion took place between the panel members and the guests where their doubts related to Health & Nutrition Claims were answered by the members.

The members shared their individual opinions about what improvement is needed in the regulation of the Food Claims. Also they kept their perspectives about how can be the Claims Justified. A point on how do certain pictures on the food products too indirectly play a role in claiming was raised. It's not just the words or phrases on the food products but also the pictures that influence consumer's behavior of consuming that product.

The discussion came to an end creating awareness and a better understanding about Claims among the guests and the delegates present for the seminar.

Declaring the successful closure of the seminar, Ms. Anuja Rawool, Food Scientist, PFNDAI; proposed a Vote of Thanks, appreciating the presence of all the guests.




Audience


Dr. Prabodh Halde


Ms. Richa Mattu


Ms. Shilpa Joshi


Audience


Audience


Audience


Audience

Panellists

Audience

Audience

Audience

Audience

BRIEF REPORT OF 49TH ANNUAL GENERAL MEETING OF 2017

The meeting was held at Hotel Courtyard Marriot, Mumbai on 8th November 2017.

Good number of members attended the meeting which was chaired by Chairman Mr. Bhupinder Singh. After his welcome address, the Executive Director Dr. Pai gave annual report including the staff changes, activities such as Nutrition Awareness, Scholarships instituted by PFNDAI, Bulletin publication, as well as workshops and seminars organized by the Association. The report was accepted by the AGM.

The Accounts were discussed next. It was reported that the Association incurred a significant loss because of non-receipt of subscriptions and some other dues such as sponsorships of bulletin and events. This was due to the change in accounting procedure by the government due to introduction of GST, so the Association as well as companies had to register and get all their payments with elaborate procedure of GST. Streamlining this took quite a lot of time and so there was a huge backlog of payment. The Association is slowly getting most of the dues. Accounts were then passed along with the appointment of auditors.

After new members' applications were approved, the Chairman gave a brief address in response to suggestions from members about the upcoming golden jubilee of the Association. He said we will certainly celebrate it with some activities initiated during the year and a Golden Jubilee seminar. The meeting ended with thanks to members and Governing Board members.


AGM Members


Chairman Mr. Bhupinder Singh Addressing AGM


Office Bearers


AGM Members

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REGULATORY ROUND UP

By
Dr. N. Ramasubramanian,
VR Food Tech Private Limited
n.ram@vrfoodtech.com

A couple of interesting and consequential regulations regarding foods that can be sold in school canteens, regulatory requirements of sale through E commerce platform has been put up. FSSAI has taken a new route called "operationalization" for making regulations effective. As per my understanding, "operationalization" gives us the freedom of implementing the regulation but at the same time it is not mandatory. I invite your interpretations.

Standards

Notice Calling for suggestions, views, comments related to Food Safety and Standards (Safe and Wholesome Food for School Children) Regulations, 2018. The regulation places restrictions on the type of food to be made available in school canteens. Foods with high fat, sugar and salt are termed as HFSS foods though no values are assigned for such categorization. The regulation directs the school to discourage the availability of HFSS foods like French fries, chips, Indian fried snacks, sugary drinks, ready to eat noodles, burgers, pizzas, confectionery, etc. It also specifies basic hygienic conditions to be maintained in school canteens and kitchens. Potable water is one important requirement which could be a challenge to many schools. The regulation also requires that the state food authority ensures that HFSS foods are not sold within 50 meters of school premises. This is possibly to discourage street vendors but there may be regular shops within the prohibited distance.

Draft regulation amending Prohibition and Restrictions on Sales regulation . The regulation deletes 'Boudouin test' requirement for Blended edible Vegetable Oil. It also permits the use of any vegetable oil mentioned in the standards or their combination.

Final notification amending Import Regulation. As per this notification, Custom Authorities shall not clear any article of food unless it has a valid shelf life of not less than sixty per cent, or three months before expiry, whichever is less, at the time of import. The regulation also states that, for specified categories of foods, importers should submit sanitary permits issued by the exporting countries. In the preamble, it is mentioned that such sanitary export certificate would be required for high risk foods. However, "high risk foods" and "specified food categories" are not defined.

Image © iStock.com/Avosb


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Amendment in Packaging and Labelling regulation has been operationalized. The amendment pertains to declarations, both style and alphabet size, in case of blended vegetable oils.

Operationalization of amendments in Licensing and Registration. The regulation defines E commerce Food Business Operator and lists the requirements for conducting E commerce in terms of licensing, display of products in E platform, shelf life at the time of delivery, etc. The regulation also modifies the Part II – Schedule IV – General requirements for hygiene and sanitary practices to be followed by FSSAI licensees. It also introduces guidelines in hygienic and sanitary practices in case of food business operators engaged in catering or food service operators.

One more directive from FSSAI banning potassium bromate in all foods.

General

FSSAI has asked for stakeholders opinion whether to continue with mandatory certification of certain food products by regulatory bodies like Bureau of Indian Standards, AGMAK, etc. In my opinion, this multiplicity of laws must go as it defeats the overall aim of Food Safety and Standards Act (2006) which was to make one single window law. Presently food business operators are also facing huge challenges from Legal Metrology rules. All the readers are urged to send their views to FSSAI.

FBOs have been experiencing difficulties in accessing licensing and registration website and many might have not renewed their license on due date. Recognizing this, FSSAI has permitted such renewals could be done till 31st March 2018.

All FBOs to have at least one food safety trained and certified person for every 25 food handlers. FSSAI has outsourced the training to channel partners and the list of training organizations in each state has been published. The programme is being monitored by state food safety.

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For details, please contact our India partner VR Food Tech Private Limited, Mumbai.
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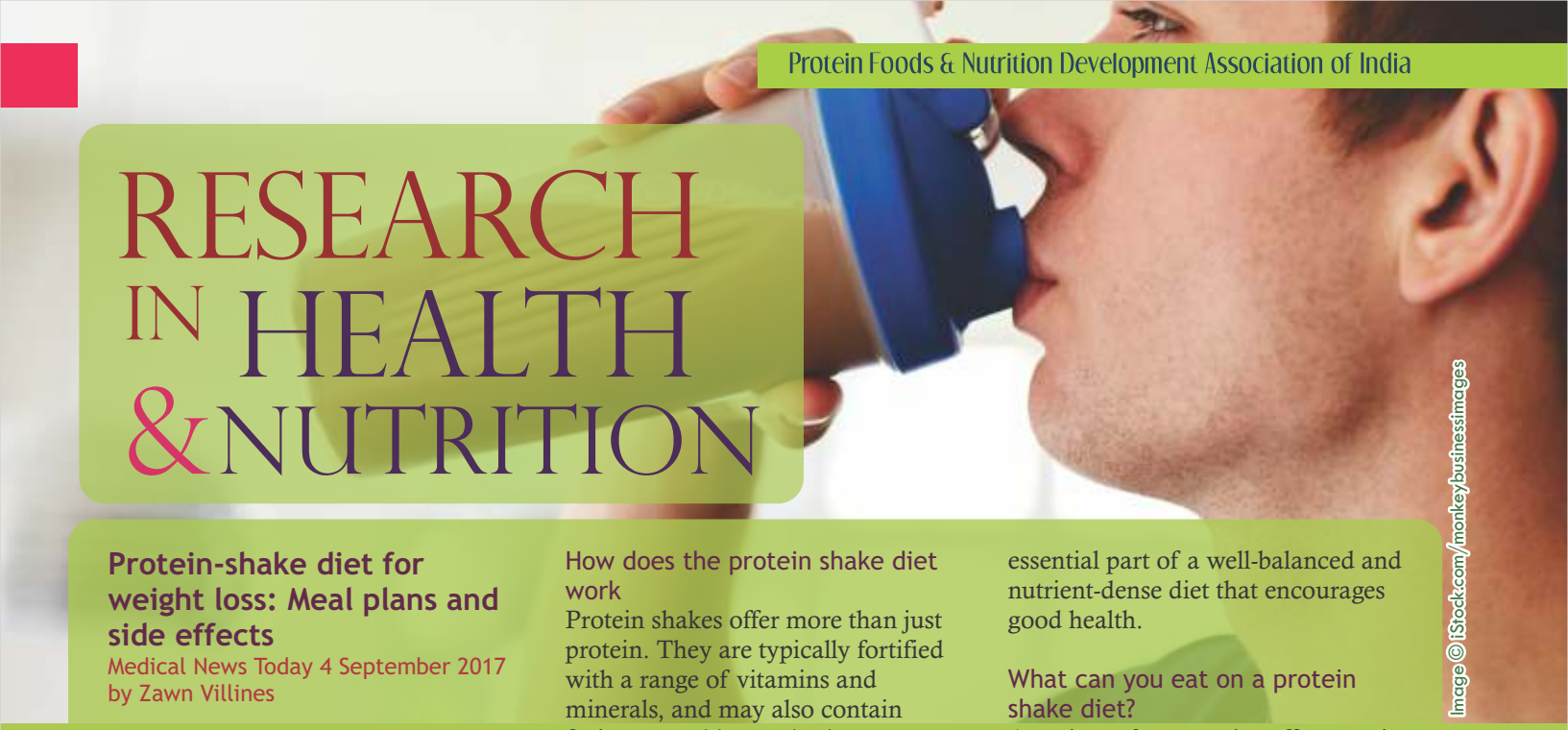

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Protein-shake diet for weight loss: Meal plans and side effects

Medical News Today 4 September 2017
by Zawn Villines

A protein shake diet encourages weight loss by curbing appetite and reducing the total calories consumed. While these diets can be effective in the short term, it is unwise to live solely or primarily on meal replacement shakes.

Protein helps build muscle and plays a role in almost everything the cells in the body do. Protein needs will vary from person to person based on weight and activity level, but most people need at least 50 grams of protein per day. This amount can easily be met by consuming beans, lentils, nuts, meat, eggs, and dairy products.

Protein shakes aim to provide, as much or more protein, as ordinary food, but with fewer calories. The idea is that weight loss and muscle gain are improved, as a result.

Fast facts on the protein shake diet:

- Most protein shake diets encourage the use of meal replacement protein shakes.
- A protein shake diet requires eating at least one protein shake per day.

The primary risk of a protein shake diet is when protein shakes are the only source of food.

- Anyone choosing to try a protein shake diet should check the protein source and other ingredients.

How does the protein shake diet work

Protein shakes offer more than just protein. They are typically fortified with a range of vitamins and minerals, and may also contain fruits, vegetables, and other nutrients.

Research has linked protein consumption to increased feelings of fullness. Thus, people who include enough protein in their diets, including from protein shakes if they choose, may have fewer food cravings and, so, eat less.

Health benefits of protein

Most protein-rich foods are high in a variety of vitamins and minerals. Some of these nutrients, such as B-complex vitamins, iron, choline, and zinc, are difficult to get in adequate quantities from other sources.

Other vital nutrients that are plentiful in some protein-rich foods include:

- vitamin E
- magnesium
- omega-3 fatty acids

How does protein work in the body?

Protein supports numerous vital functions of the body, including building and repairing:

- bones
- muscles
- skin

Protein also helps the body create hormones and enzymes and metabolize vitamins. It is an essential part of a well-balanced and nutrient-dense diet that encourages good health.

What can you eat on a protein shake diet?

A variety of companies offer protein shake-based diets. So the requirements and offerings of each program vary. Some diets are more extreme, encouraging participants to eat only or primarily protein shakes. The most balanced protein shake diets include protein shakes, as only part of a diet that is rich in other food sources. For instance, the diet might recommend replacing one to two meals with a protein shake, then eating one to two different meals that are also healthful, and one to two snacks.

A well-balanced diet should always include an appropriate amount of protein, nutrient dense carbohydrates, and healthy fats.

Risks and side effects

Meal replacement shakes are not intended to replace healthy, balanced diets. It is difficult, and perhaps even impossible, to get every nutrient from a single food source.

Furthermore, a body starved of nutrients may experience problems with metabolism, slowing or completely thwarting weight loss. A 2015 study found that people who eat a varied diet are less likely to be obese.

Some protein shakes use lots of sweetener to improve flavour, which can trigger blood sugar spikes. Protein shakes that use sugar alternatives may be more difficult for the body to metabolize. Some people experience negative reactions, such as nausea, vomiting, bloat, and gas.

A Consumer Reports analysis also found that some protein drinks have unsafe levels of contaminants. Three of the drinks tested by the consumer watchdog had high levels of contaminants such as:

- mercury
- arsenic
- cadmium

Consumers who drink three servings of these drinks each day could suffer serious health consequences. Contaminants are just one more reason why relying on protein shakes, as a sole source of nutrition, can be unsafe. In an additional eight of the drinks tested by Consumer Reports, levels of lead were high enough to need a consumer warning in California.

Because protein shakes are treated as nutritional supplements, they are subject to fewer regulations than medication is in the United States. Marketing materials for these products, Consumer Reports argues, may also be misleading.
The organization recommends eating protein-rich foods, such as milk, lean meats, and eggs instead of protein shakes.

How to safely implement a protein shake diet

Protein consists of amino acids, and the best proteins are "complete," which means they contain all nine essential amino acids. Most protein shakes use one or a combination of the following six varieties:

- whey protein
- casein protein
- egg white protein
- soy protein
- plant protein
- beef protein

To get the most out of a protein shake diet, talk to a doctor or registered dietitian first. Then consume protein shakes only on a short-term basis.
A person should stick to 1-2 protein shakes per day, and choose those that complement a healthful diet.

For instance, a person who does not get many vegetables in their diet might choose a meal replacement protein shake that contains vegetables.

To maximize weight loss, eat nutrient-dense, low-calorie foods in between protein shake meals. Eggs, lean meat, lentils, fruits, and vegetables are excellent ways to round out a protein shake diet.

Consuming large amounts of artificial sweeteners may increase type 2 diabetes risk

IFT Weekly September 20, 2017

IResearch presented earlier this month at the European Assoc. for the Study of Diabetes (EASD) in Lisbon, Portugal, suggests that artificial sweeteners can change the body's response to glucose when consumed in large amounts and could add to the risk of developing type 2 diabetes.

The study was conducted by Richard Young of the Adelaide Medical School, University of Adelaide in Australia, as well as colleagues from other Adelaide-based research institutions, and aimed to investigate the effects of consuming large amounts of non-caloric artificial sweeteners on the body's response to glucose.

The researchers recruited 27 healthy subjects who were given a quantity of two different non-caloric artificial sweeteners (sucralose and acesulfame-K) equivalent to drinking 1.5 L of diet beverage per day, or an inactive placebo. These were consumed in the form of capsules taken three times a day before meals over the two-week period of the study. At the end of the two weeks, subjects had their response to glucose tested, examining glucose absorption, plasma glucose, and levels of insulin and gut peptides.

The team found that non-caloric artificial sweeteners supplementation caused an increase in measures of the body's response to glucose, measured using a technique known as the incremental area under the curve (iAUC). This was greater for both glucose absorption and blood glucose, while the iAUC for the gut peptide GLP-1, which acts to limit the rise in blood glucose after meals, was reduced. None of these measures were altered in those subjects who were given a placebo.

The study determined that just two weeks of NAS supplementation was enough to enhance glucose absorption and increase the magnitude of the response of blood glucose as a result. They therefore concluded that the study "supports the concept that artificial sweeteners could reduce the body's control of blood sugar levels and highlights the potential for exaggerated post-meal glucose levels in high habitual non-caloric artificial sweeteners users, which could predispose them to developing type 2 diabetes."

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In response to the study's findings, the International Sweeteners Assoc. released the following statement: "The collective evidence from well-designed human studies supports that low-calorie sweeteners do not adversely affect glycemic control in healthy individuals and in people with diabetes, e.g., by affecting total insulin secretion, glucose uptake and/or glucose utilization either by direct effect or via effects on incretins (gut hormones). In fact, the beneficial effect of low calorie sweeteners in postprandial glucose is recognized also in a health claim authorized in Europe, further to the scientific opinion by EFSA [European Food Safety Authority]: 'Consumption of foods with low calorie sweeteners instead of sugar induces a lower blood glucose rise after their consumption compared to sugar-containing foods.'"

Enzyme may prevent rebound after weight loss

Medical News Today 26 September 2017
By Maria Cohut

New research has investigated ways of preventing the "hunger hormone" ghrelin from driving people who have lost weight into a rebound. An enzyme with a metabolic function was found to reduce ghrelin's influence, which may point to a new way of managing weight gain.

According to data from the Centers for Disease Control and Prevention (CDC), 36.5 percent of adults and around 17 percent of children and adolescents in the United States live with obesity. The main approach to obesity management and prevention is adopting a more healthful lifestyle, including a more balanced diet and more physical exercise. However, studies have shown that many individuals who shed weight after dieting have a tendency to rebound and regain the extra kilos that they worked so hard to eliminate.

This, researchers explain, is due to a rise in ghrelin levels. Ghrelin is the so-called hunger hormone, which tells our bodies when to feel hungry and when they have had enough to eat. This increase is due to our bodies' adaptive response to the often drastic dietary changes that lead to weight loss.

Now, researchers from the Mayo Clinic - which is based in Rochester, MN - are aiming to develop a new approach to prevent weight regain in the aftermath of a diet. Dr. Stephen Brimijoin and his colleagues tested the effects of an enzyme with the potential of blocking or limiting ghrelin production on mice. The researchers reported their findings in the Proceedings of the National Academy of Sciences.

Enzyme regulates hunger hormone
Dr. Brimijoin and his team used mice in a context simulating the situation of people who have shed excess weight through dieting, but who are then are liable to regain it due to the increase in ghrelin levels. The scientists wondered whether or not using butyrylcholinesterase might help to regulate the overproduction of ghrelin after weight loss.

Butyryl-cholinesterase is an enzyme naturally produced in the liver that plays a role in eliminating certain poisonous substances from the system, as well as metabolizing certain quantities of drugs such as cocaine.

The encoded enzyme was inserted into a neutralized virus, which was then administered to the mice with the aim of targeting ghrelin production.
It was found that boosting butyryl-cholinesterase levels both correlated with a significant drop in the levels of the hunger hormone and moderated its activity. As a result, the animals adopted more balanced eating habits and did not gain any extra weight.

This happened after only one exposure to the enzyme-boosting procedure and had long-term outcomes, allowing the mice to avoid weight gain for the rest of their lives.

'A highly successful strategy'?
Dr. Brimijoin and his colleagues hope that these findings might lead not only to a more effective approach to obesity management, but also to preventive treatments for other metabolic diseases.
These include diabetes, metabolic syndrome (characterized by a combination of risk factors that could lead to coronary heart disease and other cardiovascular problems), and fatty liver disease (characterized by excess fat accumulating in the liver).
The scientists are pleased with the success of their research so far, but they emphasize the need to replicate these results in human participants before confirming the effectiveness of this approach.

"We think this approach - combined reduction of calories and hormone - may be a highly successful strategy for long-term weight control. Given the growing obesity crisis worldwide, we are working hard to validate our findings for medical intervention." Dr. Stephen Brimijoin.


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Physical activity could lead to different diet preferences in males and females

06 Sep 2017 Nutrition Insight

A staggering 90 percent of adult Americans fail to reach the US Department of Health guidelines for physical activity, contributing to surging obesity rates across the country.

Now, new research by a multidisciplinary team of University of Missouri (MU) researchers suggests that physical activity can change diet preferences in males, but not in females – an area that researchers say has not been thoroughly studied.

"Our team wanted to make every effort to study female perspectives on how exercise affects diet because most other studies neglect females," says Jenna Lee, a doctoral candidate in the Interdisciplinary Neuroscience Program at MU. "We wanted to take a look at what drives diet preference and if environmental factors, such as physical activity, play a role in how males and females eat."

Both males and females divided
The team, led by Matthew Will, an associate professor of psychological sciences in the MU College of Arts and Science, divided male and female rats into two groups – a sedentary group and one that had access to a running wheel. Both groups ate the same food. After another week, Lee replaced the standard diet with three optional diets: high fat (similar to cookie dough), high sucrose (three times more sucrose than the other two diets) and a high-cornstarch diet. Each of the diets was matched on proteins, and the rats had continuous access to all three diets for four weeks.

Results showed that sedentary male rats preferred the high-fat diet over the other diets. Male runners ate about half as much of the high-fat diet as their sedentary counterparts but increased their intake of the other two options.

Female sedentary rats, like their male counterparts, mostly stuck to the high-fat diet. However, female runners surprisingly also preferred the high-fat diet and consumed slightly more calories than the sedentary females.

"We also examined brain opioids and gut microbiota, and we discovered key changes that paralleled the patterns observed in diet preferences between male and female runners," Lee remarks. "A reason for this might be that females have an elevated threshold for rewards. Considering females demonstrate higher levels of reward signalling in the brain, this may explain the higher threshold or capacity for reward."

"Perhaps something like running may be satiating for males but not for the females, so the females are consuming more of the high-fat diet," Lee adds. "We expected to find differences between runners and sedentary rats, but it was the sex differences that surprised us."

The research draws attention to the importance of studying both men and women in research, Lee says.

Iron supplements have long-term benefits for low birth-weight babies

September 27, 2017 Science Daily

Follow-up study finds early iron intervention can lower levels of aggression and rule-breaking behaviour in children age 7

Babies classified as low birth weight (under 2.500 grams) are at risk of iron deficiency, which is linked to impaired neurological development. A long-term randomized study now shows that providing such babies with iron supplements can prevent behavioural problems at school age. The study, led by Staffan Berglund of Umeå University in Sweden, is published in the journal Pediatric Research which is published by Springer Nature.

The findings are part of ongoing Swedish research involving 285 late preterm and term infants who weighed between 2000 grams and 2500 grams at birth, and were defined as being marginally low birth weight. This group represents a significant number of all births. The babies were randomly selected to receive either no iron supplements, or specific doses from the age of six weeks to six months.

Research up until now has shown that those babies given iron supplements had a lower risk of suffering from iron deficiency or iron deficiency anemia by the time they were six months old. When the participants were tested again when they were 3 and a half years old, the ones in the supplement group had fewer behavioural problems than those who went without extra iron.

In this study, 207 of the participants from the initial investigation were tested at the age of seven. Berglund and his fellow researchers wanted to see if the early iron intervention influenced the children's cognitive and neurobehavioral abilities. The Wechsler Intelligence Scale for Children was used to assess the children's cognitive abilities. Their parents completed two standardized questionnaires about their children's behaviour.

No major differences were found in the intelligence scores of the children in the two separate test groups. The magnitude of the intervention group to show externalizing problems was however significantly reduced compared to that of the children in the other. They had lower levels of aggressive and rule-breaking behaviour, and did not suffer as many thought problems.

The thought problems in question were recently shown to be the best independent predictor of autism spectrum disorders. This suggests that the behavioural and emotional profiles of low birth weight children who did not receive iron supplements include different symptoms of subclinical neuro-developmental problems.

"Our findings suggest that iron supplementation may have long-lasting effects on behavioural functions in children born of a low birth weight," says Berglund. "This clinically important benefit from early iron supplementation gives further support to recommend iron supplementation of all low birth weight children, including those with marginally low birth weight."

On the population level this finding is important, since marginally low birth weight infants represent a relatively large proportion of all births. Up to five percent of infants born in high income countries and fifteen percent of those in low income countries are defined as such.

Maternal diet could affect kids' brain reward circuitry

Science Daily September 25, 2017


Image © iStock.com/g-stockstudio

Researchers in France found that rats who ate a junk food diet during pregnancy had heavier pups that strongly preferred the taste of fat straight after weaning. While a balanced diet in childhood seemed to reduce the pups' desire for fat, they nevertheless showed altered brain reward circuitry into adulthood.

The Western diet is full of energy-rich foods -- from hamburgers to chocolates, we consume significant quantities of fat and sugar. The health costs of this are well known, and conditions such as obesity and diabetes are related to overeating. Factors underlying obesity include how we metabolize food, and our tendency to overeat and seek out energy-rich foods. The pleasure we derive from food stems from the brain reward circuitry, and changes in these reward circuits can contribute to overeating. Surprisingly, pregnant or breastfeeding mothers who eat significant quantities of energy-rich foods can increase their child's risk for obesity in later life. However, scientists don't yet fully understand the mechanism behind this phenomenon.

In a study recently published in Frontiers in Endocrinology, scientists used rats to investigate the relationship between a mother's diet and their offspring's weight, relationship with food, and brain circuitry. The research team fed rats a high fat/high sugar diet (which they called the 'Western Diet'), or a balanced diet, during pregnancy and suckling. They monitored the mothers' pups straight after weaning, during adolescence and into early adulthood.

The pups primarily ate a balanced diet once they were weaned, but at specific times the researchers allowed some of the pups to choose between tasting a fatty or non-fatty liquid. The liquid wasn't fatty enough to affect the pups, but allowed the team to assess their preference for fat. Using brain tissue samples, the team also investigated gene expression and brain changes associated with the pups' reward circuitry. While the pups from Western Diet mothers were a normal weight at birth, they gained more weight during suckling and were abnormally heavy at weaning. This may have been caused by the Western Diet mothers producing richer milk or more milk. When the team allowed the just-weaned pups to choose between a fatty and non-fatty liquid, pups from Western Diet mothers strongly preferred the fatty liquid compared with pups from the balanced diet mothers.

However, when the team repeated this fat preference test with adolescent pups, they found that both groups showed a similar high preference for fat -- and interestingly, the pups from Western Diet mothers gradually lost their interest in fat after a few days. This might have been a compensatory mechanism to protect the pups from further exposure to fat. By adulthood, both types of pups had similar strong preferences for fat.

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The pups from Western Diet mothers also showed significant changes in their reward circuitry, including differences in a brain region call the hypothalamus and changes in gene expression associated with a neurotransmitter called GABA.

"Previous studies have shown that when pups from Western Diet mothers have unlimited access to junk food they maintain their preference for fatty food into adolescence," says Vincent Paillé, a researcher involved in the study. "While the pups from Western Diet mothers in our study showed extensive changes in their reward circuitry, a balanced diet in childhood seemed to protect them from an increased fat preference at adolescence."

These findings could have implications for nutrition and obesity in human children in Western countries.

The team plan to further investigate the changes in reward circuitry caused by a maternal Western diet. "How these altered reward circuits integrate information could be different, and these pups might behave differently under stress or when they have free access to fatty food," says Paillé.

Taking a break from dieting may improve weight loss

Science Daily September 18, 2017

Research showed in a randomized controlled trial, that taking a 2-week break during dieting may improve weight loss

Avoiding continuous dieting may be the key to losing weight and keeping the kilos off, the latest University of Tasmania research shows. In findings published today in the International Journal for Obesity, School of Health Sciences researchers showed in a randomised controlled trial, that taking a two-week break during dieting may improve weight loss. The study, funded by the National Health and Medical Research Council (NHMRC) of Australia, investigated the body's 'famine reaction' to continued dieting and its impact on weight loss in men with obesity. During the study, two groups of participants took part in a 16-week diet which cut calorie intake by one third.

One group maintained the diet continuously for 16 weeks while the other maintained the diet for two weeks, then broke from the diet for two weeks eating simply to keep their weight stable, and repeated this cycle for 30 weeks in total to ensure 16 weeks of dieting. Those in the intermittent diet group not only lost more weight, but also gained less weight after the trial finished. The intermittent diet group maintained an average weight loss of 8 kg more than the continuous diet group, six months after the end of the diet.

Head of the University of Tasmania's School of Health Sciences Professor Nuala Byrne, who led the study with a team of collaborators from Queensland University of Technology and the University of Sydney, said dieting altered a series of biological processes in the body, which led to slower weight loss, and possibly weight gain. "When we reduce our energy (food) intake during dieting, resting metabolism decreases to a greater extent than expected; a phenomenon termed 'adaptive thermogenesis' -- making weight loss harder to achieve," Professor Byrne said.

"This 'famine reaction', a survival mechanism which helped humans to survive as a species when food supply was inconsistent in millennia past, is now contributing to our growing waistlines when the food supply is readily available."

Professor Byrne said while researchers in the past had shown that as dieting continued weight loss became more difficult, this latest MATADOR (Minimising Adaptive Thermogenesis And Deactivating Obesity Rebound) study looked more closely at ways to lessen the famine response and improve weight loss success.

However Professor Byrne said while this two-week intermittent diet proved to be a more successful means of weight loss compared with continuous dieting, other popular diets which included cycles of several days of fasting and feasting were not any more effective that continuous dieting. "There is a growing body of research which has shown that diets which use one to seven day periods of complete or partial fasting alternated with ad libitum food intake, are not more effective for weight loss than conventional continuous dieting," she said. "It seems that the 'breaks' from dieting we have used in this study may be critical to the success of this approach. While further investigations are needed around this intermittent dieting approach, findings from this study provide preliminary support for the model as a superior alternative to continuous dieting for weight loss."


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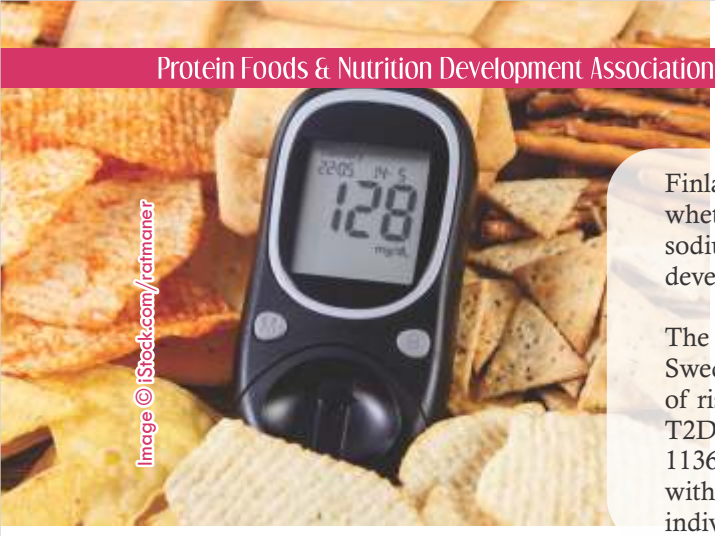

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Sodium (salt) intake is associated with a risk of developing type 2 diabetes

Science Daily September 14, 2017

Sodium intake may be linked to an increased risk of developing both type 2 diabetes (T2D) and Latent Autoimmune Diabetes in Adults (LADA) says new research being presented at this year's annual meeting of the European Association for the Study of Diabetes (EASD) in Lisbon, Portugal (11-15 Sept).

The main source of sodium in the diet is through salt. Salt (sodium chloride) is 40% sodium, so that for every 2.5g of salt consumed, 1g is sodium. Previous research* has suggested that excessive salt consumption may increase the risk of developing T2D, possibly through a direct effect on insulin resistance, and/or by promoting high blood pressure and weight gain.

LADA is a form of type 1 diabetes (T1D) in which the insulin-producing cells in the pancreas are destroyed by the body's own immune system, but unlike typical T1D it develops very slowly, sometimes over a period of years. This, together with it appearing in later in adulthood, can lead to it being mistakenly diagnosed as T2D.

This study was conducted by Dr Bahareh Rasouli of The Institute of Environmental Medicine (IMM), Karolinska Institutet, Stockholm, Sweden, and colleagues from institutions in both Sweden and Finland, and aimed to discover whether there is a link between sodium intake and the risk of developing T2D or LADA.

The team used data from a Swedish population-based study of risk factors for LADA and T2D, and compared the 355 and 1136 cases of each respectively with a matched group of 1379 individuals from the wider population acting as controls. Dietary intake was recorded using a food questionnaire and used to calculate the daily consumption of calories, nutrients, and sodium. The influence of genetics on diabetes risk was also considered, with patients being divided into 'high risk or 'other' according to their HLA genotype. Adjustments were made to account for differences in risk factors including age, sex, BMI, smoking, physical activity, family history of diabetes, alcohol, total energy, and potassium intake.

The study found that sodium intake was associated with an average 43% increase in the risk of developing T2D for each extra gram of sodium (equivalent to 2.5 extra grams of salt) consumed per day. When dividing participants into three groups of sodium consumption (low under 2.4g; medium 2.4-3.15g; high above 3.15g), the group with highest consumption had a 58% higher risk of developing T2D compared with the lowest consumption group. However, since salt is only 40% sodium by weight, for actual salt consumption the low consumption group is 6.0 grams and under; the medium consumption group is 6.0-7.9g; and the high group is above 7.9 grams per day.

The effect of sodium intake on the risk of developing LADA was even greater, with a 73% rise for each gram of sodium consumed per day. Those LADA patients with high risk HLA genotypes whose sodium intake was classed as 'high' (over 3.15 g/day) were almost four times more likely to develop the disease than those consuming the lowest (under 2.4g/day).

The authors conclude: "We confirm an association between sodium intake and type 2 diabetes" and that "high sodium intake may be a risk factor for LADA, especially in carriers of high risk HLA genotypes." They suggest that "These findings may have important implications in the primary prevention of diabetes with adult onset."

Body fat mass distribution: A possible explanation for lower diabetes risk associated with dairy food consumption

Science Daily September 13, 2017

Scientists have examined how differences in body composition may be a possible explanation for why consumption of some dairy products may be associated with a lower risk of developing type 2 diabetes or cardio-metabolic disorders. The research is being presented at this year's European Association for the Study of Diabetes (EASD) Annual Meeting in Lisbon, Portugal (11-15 September).

In this study, higher milk and low-fat dairy consumption was observed in participants who had a healthier abdominal fat distribution and a higher body lean mass, characteristics associated with a lower risk of metabolic disease including type 2 diabetes.


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Lead researchers Eirini Trichia, Fumiaki Imamura and Nita Forouhi from the Medical Research Council (MRC) Epidemiology Unit at the University of Cambridge in the UK aimed to evaluate the association between dairy consumption and objectively measured markers of body composition in over 12,000 adults (aged 30 to 65) recruited to the Fenland Study -- a population based cohort study of adults in Cambridgeshire, UK -- between 2005 and 2015.

Daily servings of different dairy products were assessed from food frequency questionnaires, and dual energy x-ray absorptiometry scans and ultrasound were used to measure markers of body composition. These markers included: the ratio of visceral adipose tissue to subcutaneous adipose tissue (VAT/SCAT; a measure of body fat distribution); total and peripheral body fat mass; and total and appendicular body lean mass (an indicator of muscle mass). Visceral fat that surrounds body organs in the abdominal area has been linked to higher rates of cardio-metabolic disease, while subcutaneous (under the skin) abdominal fat is more inert.

Consumption of total dairy (high- and low-fat combined) and consumption of high-fat dairy were not related to any body composition marker once influential factors like healthier lifestyles, body mass index, socio-demographic, and other eating habits and total calories intake were taken into account. In contrast, higher consumption of total low-fat dairy products was associated with a lower VAT/SCAT ratio. However, this protective association was not observed for specific dairy subtypes like yoghurt, cheese, butter or ice-cream.
The findings also indicated that habitual consumption of a glass of low-fat milk a day was associated with significantly higher body lean mass (0.33kg/0.7 pounds on average) -- which might be the result of the effect of milk on bone mass, muscle mass, or both.

The authors conclude, said Dr Nita Forouhi: "Our preliminary findings suggest a possible mechanism by which total low-fat dairy products and milk may be associated with a lower risk of obesity-related metabolic disorders. This is via the more favourable distribution of abdominal visceral fat relative to subcutaneous fat and body lean mass." Forouhi added "This kind of cross-sectional study cannot prove a causal association, and we intend to conduct further research to confirm the findings in prospective analyses that follow people up over time. But our study certainly is hypothesis generating and should also stimulate future research by others."

Type 2 diabetes is a reversible condition

Science Daily September 13, 2017

A body of research putting people with Type 2 diabetes on a low calorie diet has confirmed the underlying causes of the condition and established that it is reversible.

Professor Roy Taylor at Newcastle University, UK has spent almost four decades studying the condition and will present an overview of his findings at the European Association For The Study Of Diabetes (EASD 2017) in Lisbon.

In the talk he will be highlighting how his research has revealed that for people with Type 2 diabetes:
• Excess calories leads to excess fat in the liver
• As a result, the liver responds poorly to insulin and produces too much glucose
• Excess fat in the liver is passed on to the pancreas, causing the insulin producing cells to fail
• Losing less than 1 gram of fat from the pancreas through diet can re-start the normal production of insulin, reversing Type 2 diabetes
• This reversal of diabetes remains possible for at least 10 years after the onset of the condition

"I think the real importance of this work is for the patients themselves," Professor Taylor says. "Many have described to me how embarking on the low calorie diet has been the only option to prevent what they thought -- or had been told -- was an inevitable decline into further medication and further ill health because of their diabetes. By studying the underlying mechanisms we have been able to demonstrate the simplicity of type 2 diabetes."

Get rid of the fat and reverse Type 2 diabetes

The body of research by Professor Roy Taylor now confirms his Twin Cycle Hypothesis -- that Type 2 diabetes is caused by excess fat actually within both liver and pancreas. This causes the liver to respond poorly to insulin. As insulin controls the normal process of making glucose, the liver then produces too much glucose. Simultaneously, excess fat in the liver increases the normal process of export of fat to all tissues. In the pancreas, this excess fat causes the insulin producing cells to fail.

The Counterpoint study which was published in 2011, confirmed that if excess food intake was sharply decreased through a very low calorie diet, all these abnormal factors would be reversed.

Image © iStock.com/juststock

The study showed a profound fall in liver fat content resulting in normalisation of hepatic insulin sensitivity within 7 days of starting a very low calorie diet in people with type 2 diabetes. Fasting plasma glucose became normal in 7 days. Over 8 weeks, the raised pancreas fat content fell and normal first phase insulin secretion became re-established, with normal plasma glucose control.

Keep the weight off and keep the diabetes at bay

"The good news for people with Type 2 diabetes is that our work shows that even if you have had the condition for 10 years, you are likely to be able to reverse it by moving that all important tiny amount of fat out of the pancreas. At present, this can only be done through substantial weight loss," Professor Taylor adds. The Counterbalance study published in 2016, demonstrated that Type 2 diabetes remains reversible for up to 10 years in most people, and also that the normal metabolism persists long term, as long as the person doesn't regain the weight.

Professor Taylor explained the science behind the mechanisms: "Work in the lab has shown that the excess fat in the insulin producing cell causes loss of specialised function. The cells go into a survival mode, merely existing and not contributing to whole body wellbeing. Removal of the excess fat allows resumption of the specialised function of producing insulin. The observations of the clinical studies can now be fully explained." He added: "Surprisingly, it was observed that the diet devised as an experimental tool was actually liked by research participants. It was associated with no hunger and no tiredness in most people, but with rapidly increased wellbeing. The 'One, Two' approach used in the Counterbalance study was a defined two phase programme. The Phase 1 is the period of weight loss -- calorie restriction without additional exercise. A carefully planned transition period leads to Phase 2 -- long term supported weight maintenance by modest calorie restriction with increased daily physical activity."
This approach consistently brings about 15kg of weight loss on average.

After the details were posted on the Newcastle University, UK website, this has been applied clinically and people who were highly motivated have reported that they have reversed their type 2 diabetes and continued to have normal glucose levels (normo-glycaemic) over years. A further study in general practice, the Diabetes Remission Clinical Trial (DiRECT) funded by Diabetes UK is now underway to determine the applicability of this general approach to routine Primary Care practice with findings due before the end of the year.

Patients or GPs who would like more information about the diet that reverses Type 2 diabetes see the Magnetic Resonance Centre website.rofessor Roy Taylor at Newcastle University, UK has spent almost four decades studying the condition and will present an overview of his findings at the European Association For The Study Of Diabetes (EASD 2017) in Lisbon.

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Why high-fiber diets do not always lead to weight loss

Science Daily September 12, 2017

Research shows that the effectiveness of a certain diet depends on the type of bacteria in a dieter's intestine

In the era of personalized nutrition, there might be value in getting your stool tested and your gut bacteria counted before starting on a new diet. The results can be used to predict whether a particular diet will work for you. This follows a study in the International Journal of Obesity, published by Springer Nature, which shows that the increasingly popular fibre-rich "New Nordic Diet" might not work for everyone. Its success depends on the particular combination of bacteria in the intestines of the dieter. The study was led by Mads Hjorth and Arne Astrup of the Department of Nutrition, Exercise and Sports at the University of Copenhagen in Denmark.

"These results are a breakthrough demonstrating that certain bacterial species play a decisive role in weight regulation and weight loss," explains Astrup. "Now we can explain why a high fibre diet does not always lead to weight loss. Human intestinal bacteria is an important part of the answer and will from now on play a role in the treatment of the overweight."

A group of 62 overweight participants were randomly assigned to follow either the "New Nordic Diet" or the "Average Danish Diet." These eating plans vary greatly in the volume of dietary fibre and wholegrain being consumed. The former is the more fibre-rich option and places greater emphasis on wholefoods such as vegetables and fruits. The participants' weight and body measurements were taken before and after they started their 26-week diets.

The results of their stool samples were used to divide participants into two different enterotype or gut bacteria groups. This was done based on the abundance of Prevotella bacteria types found in their intestines compared to Bacteroides species. About half of the group fell in the high volume Prevotella-to-Bacteroides group, whereas the other half were placed in the low ratio group. After the initial 26-week study period, all 62 participants followed the New Nordic Diet for another year.

On average, the 31 subjects who ate the New Nordic Diet for 26 weeks lost 3.5 kilograms, whereas the 23 subjects following the Average Danish Diet lost 1.7 kilograms. The New Nordic Diet worked best for participants in the high volume Prevotella group. They lost 3.15 kilograms more body fat when they followed the New Nordic Diet compared to the Average Danish Diet. Their waistlines also decreased more significantly, and their weight loss was maintained after following the diet for one year. The type of diet followed had no influence on how much weight participants in the low ratio group lost.

"People with a high Prevotella/Bacteroides ratio were more susceptible to body fat loss on a diet rich in fibre and wholegrain compared to an average Danish diet," Hjorth explains. "The health promoting aspects of the New Nordic Diet in terms of body weight regulation seem mainly to apply to a subset of the population," he adds. "This could apply to as much as half of the population."

Hjorth says that research into the human gut microbiota is increasingly playing a role in personalizing nutrition. He believes that the two relatively stable groups or enterotypes of bacteria species into which people can be grouped could be valuable markers to predict whether specific diets will work for them or not.

Curcumin could help stem the spread of bladder cancer cells: Chinese in vitro study

By Cheryl Tay 04-Sep-2017
NutraIngredients Asia

Curcumin has been shown to inhibit the spread of bladder cancer in in vitro studies, according to Chinese researchers.

A study at the Chinese People's Liberation Army General Hospital in Beijing tested the effects of varying dosages of curcumin (5, 10, 20, 30 and 40 µmol/l) on human urinary bladder transitional carcinoma cells, comparing the results to those of the same cells in a negative control group. It was observed that when more than 10 µmol/l of curcumin was applied, "the growth of cells was inhibited in a time- and dose-dependent manner, and the difference was statistically significant" from the control group.


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The study added that curcumin was found to increase the death of bladder cancer cells, in part due to a dose dependent rise in caspase 3/7 enzyme activity. Additionally, curcumin was shown to obstruct the migratory ability of the cancer cells. The study stated that "the number of transmembrane cells gradually decreased as the drug concentration of curcumin increased". Apart from its positive effects on bladder cancer, curcumin had previously been found to alleviate coronary heart disease, added the study. The study concluded that additional studies are necessary to ascertain the in vivo anti-cancer effects of curcumin in animal models, so as to "evaluate the therapeutic potential of curcumin on bladder cancer cells, and the potential benefits of curcumin for clinical practice in the future".

Sunshine or supplements? Cholesterol concerns must be considered with vitamin D, says expert

By Kacey Culliney 17-Sep-2017 Food Navigator Asia

Clinicians must consider the impact vitamin D supplements may have on cholesterol levels in some consumers, warns an epidemiology expert.

Speaking to NutraIngredients-Asia, Dr. Anuradha Khadilkar, deputy director of the Hirabai Cowasji Jehangir Medical Research Institute in Pune, India, said high doses of vitamin D supplementation could, in some cases, raise the overall lipid profile of an individual. This, she said, should be considered by clinicians recommending high doses for deficiencies as well as the nutrition industry making vitamin D supplements and fortified foods. "Increases in cholesterol due to vitamin D supplements may be a health concern," she said.

Measuring cholesterol

Discussing her recently published research in the Indian Journal of Endocrinology and Metabolism, Khadilkar said a randomized control trial among middle-aged, vitamin D-deficient Indian men showed the negative side of supplementation. A total of 203 men, aged 40-60, participated in the study and were split into three groups – control, increased sunlight exposure and cholecalciferol supplementation. The study ran for six months with daily interventions and an overall compliance of 95% and measured 25- Hydroxy vitamin D (250HD) levels - the major circulating form of vitamin D and the precursor of the active form – as well as total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C) and high-density lipoprotein cholesterol (HDL-C) levels.

"Our results do indicate risk of adverse effects of vitamin D supplements on the lipid profile of adult Indian men," Khadilkar said. "Though larger studies are required to confirm these results, our study cautions clinicians against the use of very high doses of vitamin D supplements." Results showed distinct differences in cholesterol levels between men who had increased their sunlight exposure by 20 minutes per day between 11am and 3pm and men who had taken a 1000 IU (international unit) vitamin D supplement every day. "Our study demonstrates that with increases in sunlight exposure, there is improvement in vitamin D concentrations and lipid profile, while, in comparison, orally administered vitamin D had an adverse effect on lipid profile," Khadilkar's team wrote. Among the sunlight exposure group there was a "significant decrease" in TC of 9.4% and LDL-C also dropped 7.2%. A "small decrease" of 3.3% was also noted in the HDL-C levels for this group. By comparison, results among the group taking vitamin D supplements were very different, with a "significant increase" in TC of 5.5%, and a rise of 3.6% HDL-C and 3.4% LDL-C.

Why the difference?

The researchers said the differences could be due to a number of mechanisms at work, impacting the overall lipid profile of these individuals. However, they said HDL-C reductions in the sunlight exposure group could be explained on the basis that the common substrate 7-DHC in skin was possibly used for synthesis of vitamin D due to increased sunlight exposure and thus reduced cutaneous cholesterol production and consequently HDL-C concentration. "Increase in HDL-C in the cholecalciferol supplemented group could possibly be explained with the same logic, wherein with oral supplementation, lesser 7-DHC is used for vitamin D production," they wrote. Mechanisms for the increase in LDL-C among the supplements group remained "unclear", they said – "it is not known whether sunlight exposure affects cholesterol metabolism by improving vitamin D status or is independent of it".

Impact for industry...

Dr Khadilkar said it was important that, where possible, public health advice shifted away from the increasing trend of prescribing and recommending vitamin D supplementation. "Public health advice would imply change in lifestyle in favour of natural sunlight exposure for at least one hour per day to get adequate vitamin D levels, without the risk of increase in cholesterol levels… especially in tropical countries where skin cancer risks are not very high." For producers of fortified foods, she said it could also be time to revise levels of vitamin D in certain products.

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FOOD SCIENCE & INDUSTRY NEWS

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Mixing artificial sweeteners inhibits bitter taste receptors

Science Daily September 14, 2017

Blends of artificial sweeteners such as saccharin and cyclamate produce less of a bitter off-taste than each of the individual components, but the explanation for this puzzling phenomenon has been elusive ever since its discovery more than 60 years ago.

A study published September 14th in the journal Cell Chemical Biology solves this long-standing mystery, revealing that saccharin inhibits the activity of bitter taste receptors stimulated by cyclamate and, conversely, that cyclamate reduces the off-taste elicited by saccharin.

"Numerous sweeteners exhibit undesirable off-tastes, limiting their use in food products and beverages," says lead author Maik Behrens of the German Institute of Human Nutrition Potsdam-Rehbruecke. "Our findings in this study provide us with the tools and knowledge to find ways leading to superior sweetener blends."

High-potency sweeteners are widely used to replace energy-rich, tooth-decay-inducing sugars in food items to meet the requirements of health-conscious consumers. But in addition to stimulating sweet taste receptors, sugar substitutes also activate bitter taste receptors (known as TAS2Rs) at high concentrations, resulting in an undesired off-taste. To overcome this problem, the food industry is constantly searching for novel sugar substitutes and frequently resorts to using blends combining non-caloric sweeteners in a single formulation.

The earliest blend allowing higher sweetness levels with reduced bitter off-taste combined saccharin with cyclamate. But since this discovery 62 years ago, the mechanism by which sweetener blends become superior to single compounds has remained obscure. A clue to this mystery came when Behrens and his team discovered that some bitter compounds not only activate a subset of the 25 human bitter taste receptors, but also can inhibit different bitter taste receptors. "Knowing that mixtures of saccharin and cyclamate exert reduced bitterness compared to the single compounds raised the question [of] whether this might be due to mutual inhibition of bitter taste receptor responses," Behrens says.

To explore this possibility, Behrens and senior author Wolfgang Meyerhof of the German Institute of Human Nutrition Potsdam-Rehbruecke expressed various human taste receptors in human cells and tested their responses to different concentrations of saccharin and cyclamate. Using this cell-based system, they discovered that cyclamate strongly inhibits the saccharin-induced activation of two bitter taste receptors called TAS2R31 and TAS2R43. This effect occurred at concentrations where cyclamate itself does not elicit a side taste. Similarly, saccharin blocked the cyclamate-induced responses of a bitter taste receptor called TAS2R1.

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"Saccharin and cyclamate belong to the oldest-known high-potency synthetic sweeteners, and we were able to discover with our cell assay completely novel features of these molecules, namely their bitter-blocking ability," Behrens says.

For the time being, it remains unclear whether the components of other sweetener blends also show mutual inhibition of bitter taste receptors. "Once the activation and inhibition profiles of the 25 human bitter taste receptors have been investigated in great detail, it will be possible to tailor the composition of mixtures to develop novel sweetener formulations and to improve the taste of medicine," Meyerhof says.

Reducing sodium content in foods with KCl-based salt substitutes

IFT Weekly September 13, 2017

High dietary sodium intake represents a major health-related public issue in many countries. Such a diet can lead to increased risk of hypertension and related cardiovascular diseases.

This situation has resulted in important public policies for various salt reduction strategies. One of these is based on the use of salt substitutes or salts with reduced sodium content. Among several options, potassium chloride (KCl) has proved to be a key nutritional ingredient for this purpose, according to a review paper "Potassium Chloride-Based Salt Substitutes: A Critical Review with a Focus on the Patent Literature" published recently in Comprehensive Reviews in Food Science and Food Safety.

KCl is generally similar to the common salt (NaCl), but is characterized by slightly less intensive salty taste with a certain degree of bitterness and acrid and metallic off-tastes. To avoid these unwanted sensory properties, which negatively affect any resulting salt substitute formulations, numerous taste-improving agents (TIAs), such as spice blends, mineral salts, amino acids, and umami ingredients, have been studied.

Within the great number of various compositions of KCl-based salt substitutes, presumably the most effective ones are based on well balanced mixtures of KCl and NaCl, maintaining a sodium reduction range from 25% to 50% (relative to NaCl), which always include certain percentages of one or more TIAs.

TIAs can reduce or eliminate KCl-originated bitterness and metallic taste. Furthermore, some of them may enhance salty taste perception, while the umami substances additionally modify the whole taste profile of resulting salt substitutes through umami taste contributions. Such a type of KCl-based salt substitutes is a relatively good common salt "surrogate" at 1:1 w/w replacement ratio with no, or very little, sensory compromises down to approximately 30% of sodium reduction level.

However, KCl-based salt substitutes with a very low (<30%) sodium content, or especially those without (0%) sodium, contribute a bad overall taste and relatively low saltiness from the standpoint of an equal weight dosage as the golden standard (NaCl). Therefore, the room for improvement in TIAs for KCl-based salt substitutes with low sodium content, or sodium-free (0% to 30% Na) products, is still very large.

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Animal-based protein tops consumer choice, but plant-based options are rising fast, Nielsen finds

By Elizabeth Crawford 18-Sep-2017
Food Navigator USA

When it comes to meeting consumers' growing demand for protein, animal-based products continue to reign supreme in the US and Canada for now – but plant-based options are gaining traction and hold significant sales potential, according to the market research firm Nielsen.

Meat is a primary source of protein for 78% of Americans and 82% of Canadians, followed by eggs, which 61% of Americans and 63% of Canadians report consuming regularly, according to Nielsen. Dairy comes in third with 58% of Americans and 66% of Canadians choosing it regularly.

This is compared to only 19% of Americans and 20% of Canadians who choose plant-based protein sources of legumes, nuts and seeds regularly, the survey reveals. However, the data suggests there is a subtle shift occurring, with 22% of Americans and 15% of Canadians declaring they plan to eat less meat and 15% of Americans and 20% of Canadians saying they plan to eat more legumes, nuts and seeds. Of these three, legumes specifically show significant growth potential as a protein source, Isabel Morales, consumer insights manager for Nielsen Canada, told FoodNavigator-USA. "Legumes, as an ingredient, are found in over 160 categories across the store, and are posting growth – all indicative that they are increasingly getting to American plates," she said, adding, "categories like yogurt, ice cream and salty snacks in which legumes are listed as an ingredient are posting dollar growth in the last 52 weeks."

Beyond just legumes, sales of plant-based, high protein snacks grew 0.5% in dollars across food and beverage in the US, Morales added. "Among those, we have categories like salty snacks with dollar growth of 6%, cookies and crackers 2%, cereal and granola 3% and yogurt 34%." This trend likely will continued based on Morales' observation that 39% of respondents – especially young, multicultural consumers – to the Nielsen survey said they are actively trying to increase consumption of plant-based foods. In terms of protein, this might mean a lower ratio of it per pound, but some consumers will consider this a fine trade-off, Morales said, explaining: "In another recent study we conducted, we found that only 7% of respondents considered high protein to be an important factor in healthy eating, vs. 15% who said the same about more fruits and vegetables."

Nonetheless, she says, "plant-based proteins, in general, are providing growth opportunity to manufacturers who are looking into investing and innovating in this space. Even though consumption of plant-based protein options is increasing, meat is not about to disappear from our grocery shopping list any time soon," Morales noted. She explained a number of meat categories continue to post growth, such as fish and seafood. According to Nielsen research, currently only 29% of Americans and 31% of Canadians consider this a top protein source, but 19% of Americans and 20% of Canadians say they want to eat more fish and seafood. "Also, we see how some attributes fuel dollar growth in specific categories like lunch meats for example," Morales said, explaining, "while the overall categories is declining in dollars (-2%), segments with claims of antibiotic free, no artificial preservatives and all natural are growing even though they are offered at a higher price point."

Building on this, she said, "Whether plant or animal based, consumers are returning to basics. More natural ingredients and less processed food options are some of the attributes consumers are gravitating towards." Following this lead, Morales said, "Manufacturers and retailers need to embrace consumer preferences and not be afraid to innovate to meet demands." Growing interest in plant-based foods, 'clean' (aka cultured) meat, and grass-fed, humanely-raised meat and regenerative agriculture, stems from a desire to seek alternatives to industrialized animal production. But where will these emerging segments t into the market, and are they a threat or an opportunity for traditional meat, egg and dairy companies?

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Ayurvedic herbs' rise continues as turmeric & ashwagandha post big YOY growth

By Stephen Daniells 10-Sep-2017
NutraIngredients USA

Turmeric/curcumin continues to be a standout performer in the herbal sector with data from the HerbalGram Herb Market Report for 2016 showing massive growth across both mass and natural retail channels.

Sales of turmeric (Curcuma longa), including standardized extracts with high curcumin levels, grew a whopping 85.5% and exceeded $22 million in mainstream retail outlets, putting it at number 10 in that channel. In the natural and health food outlets channel, turmeric again took the number one spot, with sales of $47.6 million. This represented a 32% increase from 2015. "The popularity of turmeric has been increasing steadily in recent years, but consumer interest in this yellow-gold spice spiked in 2016," noted the report in the American Botanical Council's HerbalGram journal. "Based on an analysis of search engine queries, Google classified turmeric as the "breakout star" of the functional food movement of the past five years. During that time, Google searches for turmeric increased by 300%."

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Other herbal supplements with notable growth were: Ashwagandha (Withania somnifera), which posted 55.2% growth year-on-year in the natural channel to hit $8.7 million in sales; cranberry (Vaccinium macrocarpon), which experienced 36% and 11.9% growth year-on-year in the natural and mass channels to hit $7.5 million and $74 million in sales, respectively; and Echinacea (Echinacea spp.), which posted 15.1% and 8.4% growth in the mass and natural channels, respectively, to hit a total of $77.4 million in sales. Another big mover in the mass channel was Boswellia (Boswellia serrata) with 119% year-on-year growth to achieve $13.3 million in sales.

It wasn't all good news, however, with some herbs posting significant declines in sales from 2015 to 2016, said the report. Winners and losers Sales of Garcinia (Garcinia gummi-gutta) continued their downward trajectory with sales in the mass channel declining 29.6% to $35 million in 2016 from $55 million in 2015, while sales dropped 4% in the natural channel to $4.7 million. The same herb posted 23% and 48% declines from 2014 to 2015 in the mass and natural channels, respectively (HerbalGram 111). Green coffee extract (Coffee arabica) and Yerba mate (Ilex paraguariensis) also posted significant declines in the mass channel, with sales of the former declining 41% year-on-year and sales of the latter declining 36.5% year-on-year. "It appears that US consumers have continued to distance themselves from certain herbs with alleged weight-loss or metabolism-boosting benefits in 2016," stated the report.

"This was reflected in mainstream sales declines for green coffee (Coffea arabica, Rubiaceae) extract (–40.6%), which had the third highest percent sales decrease from 2015; yerba mate (Ilex paraguariensis, Aquifoliaceae; –36.5%), which had the fourth highest percent sales decline; and garcinia (Garcinia gummi-gutta, Clusiaceae; –29.6%), which experienced the sixth highest percent sales decline. However, in 2016, boosting energy remained the second most common reason for taking supplements, according to CRN's annual survey. As an alternative to these ingredients, consumers may be turning to a different class of herbs: the adaptogens, which, as discussed later, have been shown to have many effects on the body, including an impact on energy levels."

Overall sales Total sales of herbal supplements continued to grow in the US for the 13 consecutive year, said the report, with total US retail sales surpassing $7 billion for the first time, reaching a total of $7.452 billion in 2016. US consumers spent an estimated 7.7% more on herbal dietary supplements in 2016 than in the previous year. Herbal supplement sales in mainstream US retail outlets in 2016 totalled approximately $943.9 million, according to SPINS and IRI. NBJ, which includes different sources in its dataset, determined a higher total of $1.336 billion in mainstream sales for 2016.

The top selling herbal supplement in the mainstream US retail channel was horehound (Marrubium vulgare), an herb commonly found in natural cough drops and lozenges, ranked first in total mainstream US retail sales for the fourth consecutive year. "This report documents the consistent growth of consumer demand for natural remedies, as evidenced by the increased sales of herbal dietary supplements," said Mark Blumenthal, founder and executive director of ABC. "This is indicative of a well-demonstrated, long-term trend toward natural medicine and consumers' interest in taking responsibility for their own health via the responsible use of herbal medicine as an integral part of self-care." The American Botanical Council's annual market report for herbal supplement sales is based on US retail sales data from SPINS, IRI, and the Nutrition Business Journal.

The report covers only retail sales of herbal dietary supplements and does not reflect the sales of most herbal teas, botanical ingredients used in cosmetics, or government-approved herbal drug ingredients in over-the-counter medicines.

Badal: Food industry must knuckle down to boost processing power

By RJ Whitehead 11-Sep-2017 Food Navigator Asia

An angry food processing minister has slammed Indian food companies for losing focus on the segment's development.

Harsimrat Kaur Badal said the scale of domestic food manufacturing lags far behind that of developed countries, despite the government's attempts to ramp it up. She claimed that only 10% of Indian food companies were involved in

Image © iStock.com/photoaliona

processing, compared to 70-80% in European and North American countries—despite India's substantial agricultural base. The minister will have been cheered then by the news that Tamil Nadu is planning to set up new food processing units in 10 districts at a cost of nearly INR4bn (US$62.5). While launching the strategy, deputy chief minister O Panneerselvam also announced plans for better cold-storage facilities in the southern state, where 35% of agricultural produce is lost to wastage. He said that an integrated cold-chain infrastructure will be designed in six districts specifically for storing bananas, of which Tamil Nadu is India's biggest supplier. The government has also linked up with Niti Aayog, Delhi's development think tank, for a pilot project to bring food processing facilities to 10 districts over the next 18 months.

Brands must respond to consumer trends to ape Chinese e-sales success

By RJ Whitehead 30-Aug-2017 Food Navigator Asia

Korea and China have set the pace for e-commerce to disrupt FMCG retail in Asia-Pacific, leaving online sales in other market lagging behind. Yet the Far East's embrace of internet retail can serve as a "beacon of hope" for many other Asian markets to stimulate new and growing demand, according to Nielsen's Laura McCullough.

A FMCG specialist in emerging markets, she believes that what works in one Asian region will not necessarily work in all: while online grocery shopping has been adopted by many markets, in others the uptake is much slower.

Consumers in the Philippines, the Pacific, Indonesia and Thailand still greatly prefer shopping in physical stores, and traditional channels will be preferred in those countries for the short to medium term. Meanwhile the big Far East online economies have been finding success, suggesting that a rapid increase in connected consumers across wider Asia will lead to an explosion of e-commerce in the coming years. This new "innovative disruption" in particular can create new value networks, and companies that embrace these early will prosper immensely. In India, internet penetration will grow from 26% of consumers in 2015 to 67% in 2020. In Thailand, it will jump to 69% from 41% over the same period.

"The proliferation of smart phones and e-commerce options in many markets is creating a new retail environment in Asia, one where consumers have unparalleled access to new products, services and experiences," said McCullough. "Venture capitalists and technology companies like a-Commerce are key industry enablers, while players such as RedMart in Singapore and Flipkart in India are driving the trial and usage of e-commerce. Alibaba's majority acquisition of Lazada and Amazon's growing footprint across the region signals a race for e-commerce domination."

There are similarities between South Korea and China in how e-commerce has evolved for FMCG categories. Though their value is typically smaller than in other e-commerce segments, sales of food products illustrate the growth potential of Asia's big two markets. Korean online beverage and frozen food sales account for just 12% and 9% of the category respectively, though growth has been strong—at 13% and 17% last year.

In China, crispy snack foods and carbonated soft drinks make only 5% and 2% of online sales, but are showing strong growth at 57% and 54% over the last quarter, compared to a year ago. Fresh food is often seen as the last bastion of online conversion. In Korea, its share of online market value grew up to 28% in 2016. A recent Nielsen survey revealed that four in 10 Chinese and Korean respondents have purchased fresh groceries online, compared to 21% of consumers globally and 11% in Southeast Asia.

To tempt consumers, retailers have been innovating and altering their fresh offerings to overcome a reluctance to purchase these online, through schemes such as money-back guarantees, free delivery and promotional offers. Yet concerns over freshness and inability to physically touch produce are still often barriers, though it appears this can be overcome. Half of Asia-Pacific consumers surveyed by Nielsen stated that they would be willing to purchase fresh food online if full refunds or vouchers were given for produce that did not meet expectations.

Image © iStock.com/gpointstudio

Online channels are seeing formal market routes being replaced by informal channels such as consumer-to-consumer, such as the sale of infant milk through online marketplaces and social platforms like WeChat. This means manufacturers and traditional retailers are unable to control the brand positioning, and this can impact on quality, pricing and the point-of-purchase experience, McCullough says. Corporates are also looking for direct-to-consumer opportunities by creating their own online stores or using marketplaces. The retail environment is evolving rapidly away from traditional approaches to micro-marketing and logistics. Companies must understand the evolution of their brand sales across all retail formats and markets, and bring best practices from offline to online and vice versa to enhance the channel experience.

"While the digital shelf may appear on face value to offer an unlimited assortment of opportunities, the reality is people will only scroll or click through to a limited selection," said McCullough. "Successful offline brands are not guaranteed to be successful online. Companies must ensure they have strong activation tactics to drive trial of new products overcoming automatic shopping baskets based on prior purchases. They need to be receptive to the diverse needs of consumers in Asia be it online or offline." The most agile will respond quickly and effectively to changing consumer demand to benefit from the region's dynamic retail landscape.

Image © iStock.com/vtupinamba

Danish juice firms create value-added bakery ingredients with fruit pulp waste

By Niamh Michail 27-Aug-2017 Food Navigator

Leftover fruit pulp from the juice industry is being transformed into a value-added and healthy ingredient for cereals, baked snacks and chocolate.

Leftover fruit pulp is a by-product from the juicing industry that is currently either thrown out or composted. But given its nutritional properties, as well as increasing interest in industry's efforts to cut down on food waste in the supply chain, a growing number of juice manufactures are investing in the processing equipment needed to create new ingredients from the pulp.

Two Danish companies Wish and Vesterhavsmost were exhibiting such ingredients for the first time at Bite Copenhagen last week. Vesterhavsmost is an apple producer and juice manufacturer based in the west of the country, close to the North Sea coast. "We have been developing this product for the past two years and are showing it for the first time here," the company's president Søren Laubjerg said. "We now have the machines, production has started and everything is running as we hoped. We are looking for customers for this new product." Food manufacturers could use it for baked goods such as pancakes, cakes or muffins while consumers could use it as a topping for yoghurt and muesli or in home baking, he added. The apple granules have a sweet, tangy flavour and are high in both fibre – which has an EU-authorised health claim – and pectin, which could provide functional benefit for food manufacturers and bakers, Laubjerg said. Vesterhavsmost apple granules.

The granules are additive-free, containing nothing but the dried pulp of cold-pressed apples, and are available in both fine and coarse granules. One jar will retail at around 40 DKK (€5.38) for consumers while prices for manufacturers will depend on the quantity purchased. A 0.75 litre bottle of apple juice provides half a jar of apple granules and the family-owned company currently produces around 20 tonnes of dried pulp a year, equivalent to 76,000 bottles of juice.

The region's slightly colder climate means Vesterhavsmost leaves the apples on the trees for longer than other apple-producing regions, Laubjerg said, which improves the flavour of both the juice and the pulp. Meanwhile, Lolland-based Wish makes its flakes from the pulp of pressed apples and oats, which it bakes at low temperatures to get a crunchy texture and retain as many vitamins as possible.

Denmark's Nature Agency, a branch of the country's Ministry of Food, Agriculture and Fisheries, subsidised 40% of the costs of project, such as installing new processing equipment. Pila Kirkensgaard Pannbacker, head of sales for Wish, told us this was a new venture for the company and it was still in the development stage but it has already identified cereals, chips, chocolate and baked snacks as ideal applications.

Danish supplier serves up a healthy dose of hemp product innovation

By Niamh Michail 30-Aug-2017 Food Navigator

Bored with the usual hemp launches - granola and cereal bars - one Danish supplier is helping manufacturers think outside the box.

Hemp cheese, gin, salami and marzipan are just some of its latest creations. CEO and product developer at Møllerup Gods Henrik Rendbøll initially began cultivating hemp for the stem, a highly fibrous material used for textiles and as a planting substrate. With the revenue from this, he began experimenting with the food possibilities, starting with four basic products – whole seeds, shelled hemp hearts, oil and flour.

"By making these different fractions, it became really easy to work with as an ingredient," Rendbøll said. Møllerup Gods (which translates as Møllerup Estate) cultivates a Finnish hemp variety suited to the Danish weather, working with seven different farms that are both certified organic and conventional. The company grows and processes the hemp itself, always harvesting and processing batches during the same period, and using mechanical means which never exceed 40° Celcius. Demand has skyrocketed, and it increased its growing area from 30 hectares in 2015 - the year it started - to 500 the following year.

"We now have everything from bread mixes to pesto sauce, beer and gin, marzipan bread, granola and cereal bars. Even goats' cheese and salami with roasted hemp seeds," Rendbøll added, all of which have been developed and launched in the 18 months, including a range of skincare products. Mollerup Gods Working in collaboration with Ørbæk Brewery and Distillery it produces red and black ales brewed with hemp our and a craft gin with organic hemp for flavour. It also makes a mixed beef and pork salami with whole, roasted hemp seeds for a crunchy texture.

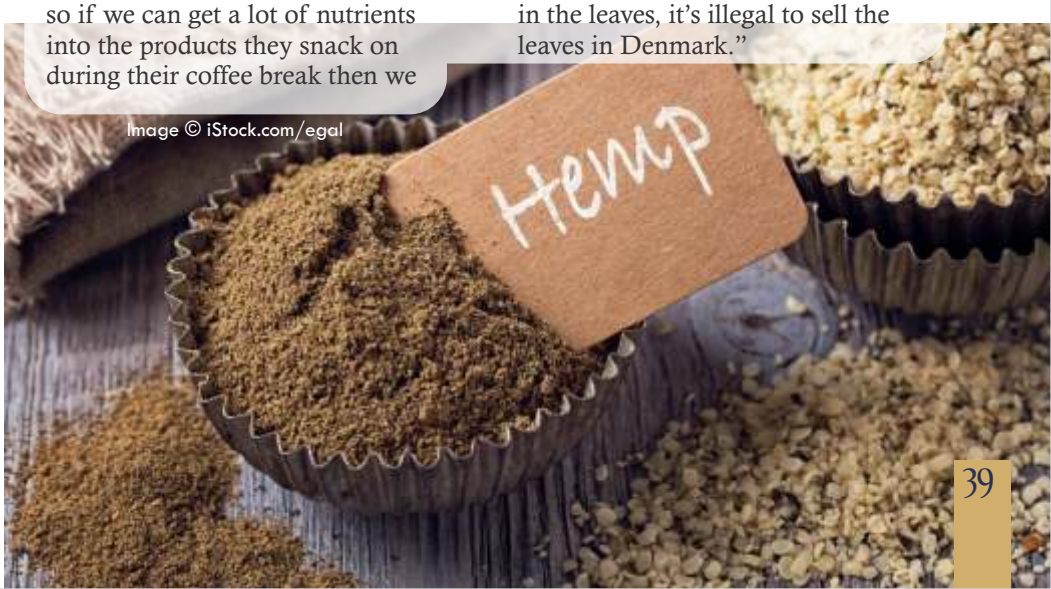
"We go out to meet and talk with different manufacturers to help them understand the raw material and how they could use it in their production," the CEO said, and reactions have been good with manufacturers creating new products and sending it back to Møllerup Gods in order to fine tune the recipe. "I just got back a product from a big chips producer and they have just made hemp, tomato and spinach extruded snack. The idea is that you don't have to make hemp the main ingredient in a product. You can add a small amount – 5, 10 or 20% - and you improve the nutritional quality or flavour of that product. We want to add a little bit of hemp into a lot of different products to improve people's nutritional intake."

As part of this stealth health drive, the firm manufactures marzipan with 5% hemp protein and 15% shelled hemp seeds that are tailored to elderly people who often suffer from both protein and fibre deficiencies. It sells these to retirement homes. "Snacks work better with this [population segment]. Sometimes elderly people have difficulty eating large amounts so if we can get a lot of nutrients into the products they snack on during their coffee break then we can help."

Hemp seeds contain around 25% protein, 27% fibre and 32% oil as well as all essential amino acids and a good fatty acid profile with 1.8% omega 3, 5.3% omega 6 and 0.8% omega 9. Each product can be produced to organic standards depending on customer demands, Rendbøll said, adding that most demand for organic currently comes from caterers and food service. When looking for buyers, Møllerup Gods decided to bypass smaller, health food shops and target larger retailers. "We only sell in big supermarkets.

A lot of people were already buying hemp in specialist shops and online so our strategy was to make it easy for 'normal' people to be able to buy hemp, and they don't go into specialist shops.

Our Stealthy, healthy hemp CEO and product developer Henrik Rendbøll Retail strategy: We wanted to bring this to the mass market focus was always to bring this to the mass market, and right now my mission is to help industry to develop new products with hemp in."In addition to selling via its online shop and in major Danish bricks-and-mortar outlets, Møllerup Gods currently exports around Europe including to Sweden, Germany, Holland and Spain. It also exports hemp leaves to Germany. "Even though it's classified as industrial hemp, which means there is less than 0.2% THC in the leaves, it's illegal to sell the leaves in Denmark."



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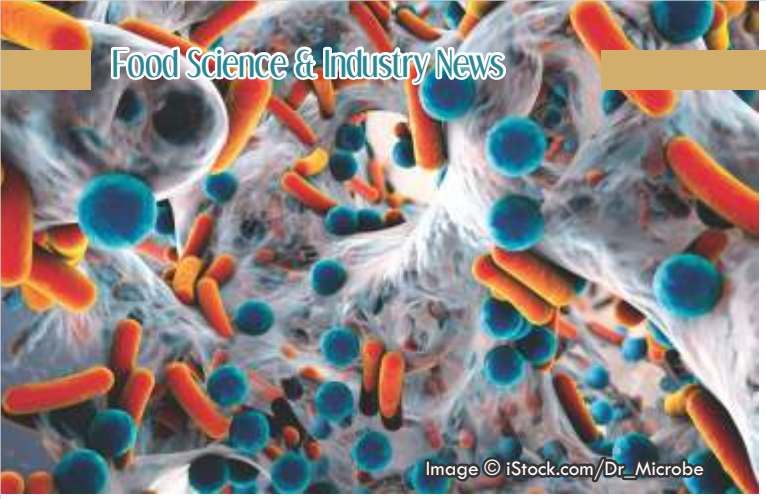
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What natural compounds can help break down biofilms?

Food News LATAM SEPTEMBER 14, 2017

Biofilms are formations that occur when a group of microorganisms such as bacteria, fungi, parasites and viruses adhere to a surface and create a colony.

The biofilm forms itself in a type of "shield" that has a sticky consistency, often called "silt". These biofilms act as a barrier and help the colony defend itself against antimicrobial treatments and our immune cells. Biofilms may be part of the reason why some wounds may be difficult to heal, and persistent infections remain recurrent. However, biofilms are not always undesirable, and they can also harbour healthy bacteria in our digestive system and in our skin. Where are the biofilms?

A biofilm colony secretes materials that provide a structured matrix, similar to cement, that adheres to surfaces such as the lining of the gastrointestinal tract (GIT), urinary tract, respiratory system, heart, mouth (including the teeth), sexual organs, eyes, the middle ear and the skin. Biofilms can also be formed in medical materials such as catheters, joint replacements, heart valves and commonly occur in hospitals. A good example of a commonly understood biofilm is the accumulation of plaque (or biofilm) in the teeth. Treating and breaking down plaque can sometimes be a challenge; the infection "hides" in the plaque, away from antiseptic and immune system treatments, sometimes causing gingivitis (inflammation of the gums).

Biofilms are good for "hiding" microbes
Up to 80% of the infections in the body that affect the body systems mentioned above are associated with the formation of biofilm. These biofilms can hinder the passage of antimicrobial treatments to the biofilm. A microbial biofilm is continuously changing, stimulating inflammation, and acting as an obstacle to the action of the immune system. These types of persistent infections can be correlated with a range of health problems, including middle ear infections, urinary tract infections (UTIs), GIT infections, excessive fungal growth, and more. The life cycle of the biofilm includes the microbes that communicate through a process called 'quorum sensing'; where the microbes send messages to each other to start the formation of the matrix (cement) of the biofilm. The microbes then communicate with each other as to their total number, and when they distinguish that there is a large colony, they begin to work as a community. Once the biofilm has been formed, the channels have been developed to allow the nutrients to improve the development of the colony. There are a number of natural compounds that can help the breakdown of microbial biofilms . Some may preferentially target the overgrowth of "bad" microbes in biofilms, while improving "good" bacterial biofilms, such as: Garlic has been shown to be effective against fungal biofilms Oregano Cinnamon Curcumin N-acetylcysteine (NAC) Bilberry can be used to treat biofilms associated with UTIs Ginger

Healthy ageing NPD in Asia: Can functional foods follow supplements' lead?

By Gary Scattergood 12-Sep-2017
Food Navigator Asia

The vast majority of new product launches targeting the main health concerns for seniors remain in the supplement space, with analysts arguing there is vast potential for the region's food and beverage firms to help meet the needs of older consumers.

Joint health, heart health and cognitive health repeatedly come out as the top three health concerns of Asian consumers, who appear to place a greater importance to healthy ageing than their European counterparts.

Over the next two decades, more than 25% of the population in China, Japan, Korea, Hong Kong and Singapore will be over the age of 65. In Japan alone, that figure


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will start to nudge 40% by 2050. Speaking at FI Asia in Bangkok, Kevin Xiao from Innova Market Insights said this had led to an increase in new product development in the region, with joint health products increasing by 60% in the past five years, and heart health products by 27%.

However, the majority of these launches are found across supplements, rather than foods. Xiao said mobility and joint health topped the issue of health concerns among Asia's seniors. In the food and beverage segments, he said dairy remained the most popular platform with products fortified with vitamin D, calcium or protein. However, he said Asia was witnessing a rise in products containing collagen for improved joint health – in a move away from its traditional skin health claims. "Collagen is increasingly receiving more attention," he said. "In Europe most collagen claims are for skin health, but in Asia we are seeing stronger growth for both bone and joint health.

Collagen rocks

"Dairy remains the main platform for collagen, but we are now seeing more juice products too." Xiao added that food and beverage products with heart health claims had considerable scope for growth in Asia. In China alone, 30% of the senior population has taken a prescription medication for high blood pressure, with a further 17% taking one for another cardiovascular issue. "We see that around 20% of supplement NPD launches are making heart health claims in Asia, but there are relatively few in food and beverage. There is a big opportunity to do more here," said Xiao. Botanical products that have garnered traction in supplements could provide the basis for functional food products, he suggested, pointing to ingredients such as hawthorn, noni, ginger and garlic as being suitable for exploration.

While snacks remains the largest category for food launches with heart health claims in Asia, he said there was considerable growth in soft drink items. Xiao added the food firms could also take greater inspiration for new products from supplements around brain health. "We need to see if there can be better innovation to apply omega-3s and ingredients such as gingko biloba to food and beverage development in Asia," he added. "In some respects, supplements are taking the lead and food and beverage needs to catch up."

Indian government to pump $1.7bn into dairy industry

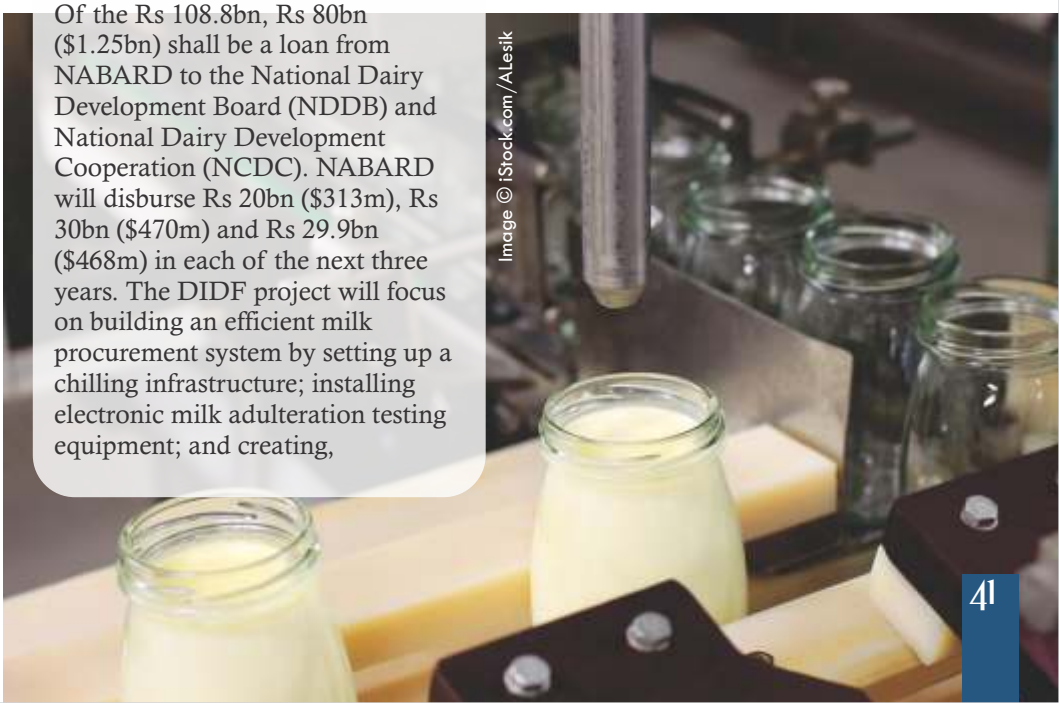
By Jim Cornall 11-Sep-2017 Dairy Reporter

India's Cabinet Committee on Economic Affairs, chaired by Prime Minister Shri Narendra Modi, has approved a Dairy Processing & Infrastructure Development Fund (DIDF) with an outlay of Rs 108.8bn ($1.7bn) during the period 2017-18 to 2028-29.

The DIDF will be set up with the National Bank for Agriculture and Rural Development (NABARD). Of the Rs 108.8bn, Rs 80bn ($1.25bn) shall be a loan from NABARD to the National Dairy Development Board (NDDB) and National Dairy Development Cooperation (NCDC). NABARD will disburse Rs 20bn ($313m), Rs 30bn ($470m) and Rs 29.9bn ($468m) in each of the next three years. The DIDF project will focus on building an efficient milk procurement system by setting up a chilling infrastructure; installing electronic milk adulteration testing equipment; and creating, modernizing and expanding processing infrastructure and manufacturing facilities for value added products for milk unions and milk producer companies.

The project will be implemented by the NDDB and NCDC. An implementation and monitoring cell (IMC) located at NDDB, Anand, will manage the implementation and monitoring of day-to-day project activities. The end borrowers will receive loans at 6.5% interest per annum. The period of repayment will be 10 years with an initial two years' moratorium. The respective State Governments will be the guarantor of loan repayment.

The investment will benefit 9.5m farmers in about 50,000 villages. Improving infrastructure Increased production and job creation The government said it anticipates an additional milk processing capacity of 12.6m litres per day; milk drying capacity of 210 MT per day; milk chilling capacity of 14m litres per day; installation of 28,000 bulk milk coolers (BMCs) along with electronic milk adulteration testing equipment and value added products manufacturing capacity of 6m litres per day. Initially, 39 milk unions in 12 states will be involved in the project. The government said direct employment opportunities will be created for about 40,000 people.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Minister paints rosy picture of India's food processing future

By RJ Whitehead 18-Sep-2017 Food Navigator Asia

In a thinly veiled dig at the previous government, India's top food processing official said the Modi administration is on track to full its pledge to open 42 mega food parks.

Speaking at the opening of a food show in Mumbai, minister of food processing industries Harsimrat Kaur Badal said the government's aim is to treble India's food manufacturing capacity from its current level of just 10% of agricultural produce. To do this, it would complete the INR60bn (US$932m) mega food project as part of her ministry's Sampada scheme, announced in April, which was designed to modernise the industry and reduce waste. "From 2008 to 2014, when this government took over, I was very surprised to see that out of 42 sanctioned mega parks, only two had been operationalised," Badal said. "We have already operationalised six of these mega parks in two years." According to ministry guidelines, it should take only two years to make a sanctioned food park operational, she added. The government is also betting on the 101 cold chain projects it rubber stamped in March to give an additional boost to food processing capacity. "A hundred cold chains have been set up already, and in the next 18-24 months, 101 more cold chain projects will be ready," Badal said. The ministry expects these investments to add 334m tonnes of processing capacity, worth nearly INR1tr. They are expected to create 500,000 jobs, and benefit a further 2million farmers.

Dr Vilas Adhikari Felicitated by INFAH Award

Dr. Vilas Adhikari was recently awarded the INFAH Award for his unparalleled contribution to Animal Health Industry in general and Animal Nutrition in particular.

Through his resolute commitment, bold ideas and priceless expertise, Dr Adhikari has ensured the continued progressive growth of Animal Healthcare for more than five decades. Indian Federation of Animal Health (INFAH) companies honoured him with this prestigious award.

Dr Adhikari is one of the pioneers in the field of nutrition in India and has played a major role in the evolution of the Indian Nutrition Industry. He is a former Chairman of Protein Foods & Nutrition Development Association of India (PFNDAI) and continues to be an active Governing Board member. He has created awareness about Food Fortification with many talks in Food & Nutrition institutions.

After his B. Pharm. degree he continued his postgraduate studies and obtained Doctorate of Science from German University of Saarland. After a brief stint in German company CF Asche & Co and working as ICMR fellow guiding PhD students, he joined Roche India as techno-commercial executive in Vitamin Division with pioneering contribution to Animal & Human Nutrition industry in India. He rose to become Director position in the company and continued guiding business even in RSA Vitamin P Ltd and later DSM Nutritional Products. He brought vital changes in the industry. After retirement he continues to advise food and nutritional industry as consultant.

REGULATORY NEWS

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Acrylamide laws will not prohibit traditional foods, says Commission

Food Navigator by Niamh Michail 20-Aug-2017

Europe's pending new acrylamide regulation will not prohibit certain traditional foods or culinary traditions, the Commission has said, following concerns raised by EU politicians.

Mara Bizzotto, member of the right-wing and Eurosceptic Europe of Nations and Freedom (ENF) party, asked the Commission "how it intended to adequately protect Italian, Belgian and other European gastronomical specialities and traditions containing fried potatoes and grains (fries, biscuits and other oven-baked specialities) to minimise the market and image-related losses in the entire supply chain that may arise from the future regulation on reducing acrylamide in food".

Bizzotto cited concerns raised by the Flemish minister for tourism, Ben Weyts, who recently protested against the legislative proposal on the grounds it may have negative economic and image-related repercussions on one of Belgium's culinary specialities, fries – also known as chips or French Fries. However, in an answer given on behalf of the Commission and published on the European Parliament's website last week (16 August), commissioner for health and food safety Vytenis Andriukaitis sought to reassure the politicians. "The foreseen regulatory measures will not prohibit certain traditional culinary practices or certain traditional foods," he wrote. "The regulatory measures would oblige food business operators to apply mitigation measures (i.e. to choose options which result in a level of acrylamide as low as reasonably achievable) with respect to the culinary practices and the recipe of traditional foods, and without changing the nature and the organoleptic characteristics of the traditional food in question."

The regulatory proposal, put forward by the Commission and voted through by member state representatives, would see the introduction of binding mitigation measures as well as benchmark levels to verify the effectiveness of the mitigation strategies. Once this proposal has been adopted, the Commission will begin discussions on setting maximum limits for the carcinogenic contaminant in certain foods. Setting maximum levels is "in addition and complementary to" the envisaged mitigation measures, it said. It is expected to come into force as early as spring 2018.

'Better education and tighter labelling laws' needed to stop sports doping in India

By Cheryl Tay 28-Aug-2017
NutraIngredients Asia

Athletes in India must be better educated on the detrimental effects of doping and regulators must introduce stricter labelling rules for over-the-counter supplements, president of the All India Council of Sports Vijay Kumar Malhotra has said.

Athletic doping in India has become a prevalent issue, due to athletes taking over-the-counter supplements and medications without sufficient knowledge about their ingredients or possible effects. President of the All India Council of Sports Vijay Kumar Malhotra recently voiced concerns to Indian media regarding the rising number of cases involving athletes doping, and emphasised the need to solve this problem.

Malhotra has brought the issue to the attention of the Union Ministry of Human Resource Development and the National Council of Educational Research and Training (NCERT), with suggestions on how to better educate students on the matter. He encouraged them to add

Image © iStock.com/luckyraccoon

a chapter on the negative effects of doping to textbooks for students of all levels, as well as to print and distribute booklets across all schools and colleges in the country, targeting athletes in particular.

Malhotra also suggested that measures be put in place to recover prize money given to athletes who have been doping. He told the Press Trust of India (PTI): "The Sports Ministry should ensure adequate clauses for full recovery of prize money from the tainted sportspersons in proposed legislation to criminalise doping. The employers of sportspersons should also be approached with proper guidelines to take punitive action against such tainted sportspersons." Malhotra highlighted the lack of standardisation of medicines and health supplements being sold over the counter, as well as the dearth of "recognised standard stores available in India, where one can buy secure consumables which do not contain prohibited substances". Money back He added: "I have also taken up the matter with the Food Safety and Standards Authority of India (FSSAI) to regulate the medicines and food supplements being sold in the market, frame standards for all allopathic, ayurvedic and sidha medicines and food or health supplements, and issue certification to such items which do not contain prohibited substances."

Defining 'nutritious': Study compares expert and consumer assessments of healthy snacks

By Nathan Gray 05-Sep-2017
NutraIngredients

The term 'nutritious' is regularly used in product marketing, but the way in which consumers and 'experts' view the word may be different, say researchers calling for an agreed definition.

Writing in the journal Nutrients, the team behind the new study examined how people defined 'nutritious' and evaluated the term 'nutritiousness' – finding significant differences in the way experts and the general public (and consumer) understood and defined the terms.

"In order to promote healthy eating and to design nutrition information panels that are relevant to consumer needs, it is important for nutrition experts and policy makers to understand how the general population define and interpret the term 'nutritious'," said the authors – led by Tamara Bucher from the Institute of Food, Nutrition and Health (IFNH) at ETH Zürich. "In line with how nutrient profile scores are defined, experts used terms such as micro- and macronutrients, vitamins and minerals, as well as nutrient density and concentration," they said. "Lay participants, however, used more holistic and descriptive terms such as body needs, fuel, and fresh."

The team noted that since nutrient profiling systems and on-pack nutrition labelling based on nutrient profiling systems are now implemented in several countries, differences in the perception of what constitutes a healthy product and the description of the term 'nutritious' between consumers and experts suggests that a standard definition may be needed. "The term 'nutritious' is not currently regulated in most countries and little is known about how consumers interpret the term," said the team. "The results also highlight the potential need for definitions and regulation of the term 'nutritious' in food marketing."

Study details Bucher and her colleagues asked 206 nutrition experts and 269 consumers to provide definitions for the term 'nutritious' before evaluating the 'nutritiousness' of 20 different snack foods in a cross-sectional survey. "Expert and lay definitions differed considerably, with experts using terms such as nutrient-density, macro- and micronutrients, kilojoules/Calories, while lay consumers used descriptions such as fuel, fresh, natural, body needs, and functioning," wrote the authors.

Furthermore, the average perception of snack foods differed significantly for 18 out of the 20 sample snacks – with the largest difference for yoghurts. "The largest differences were found for natural and flavoured yoghurts and toast, with experts evaluating these foods as more nutritious," they said. "Differences were smaller for the discretionary foods such as lollies, carrot cake, and rice cakes." Indeed, compared with the general consumer, the experts evaluated snack foods with better nutrition profile scores as more nutritious and foods with a lower nutrient profile score as less nutritious. "Biases were found for certain foods such as 'chocolate', which was rated as more nutritious than expected from nutrient profile scores and 'lollies', which was ranked as less nutritious compared to the nutrient profile scores," said the team. They concluded that the findings will help to influence nutrition education, and suggest the potential need for standardised definitions and greater regulation of the terms when used in food product marketing.

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HEALTH BITES

Soluble and insoluble fibre: What is the difference?

Medical News Today 31 August 2017
By Jennifer Huizen

Dietary fibre, the indigestible part of plant material, is made up of two main types. Soluble fibre easily dissolves in water and is broken down into a gel-like substance in the part of the gut known as the colon.

Insoluble fibre does not dissolve in water and is left intact as food moves through the gastrointestinal tract.

The term fibre refers to all the parts of plant-based foods that cannot be digested or absorbed by the body.

Unlike simple carbohydrates, including most breads and sugars, fibre is a complex carbohydrate and does not raise blood sugar levels.

Fibre is commonly found in vegetables, fruits, whole grains, and legumes. It is also sometimes called roughage or bulk. It is an essential nutrient, which means it must be eaten in the diet.

Fast facts on soluble and insoluble fibre:

- Soluble and insoluble are the two main types of fibre. Many fibre-rich foods contain some of both.
- Both forms of fibre have health benefits.
- Humans have been using fibre as a dietary aid since ancient times.
- In a society built on refined carbohydrates, or white breads, pastas, and sugar sweeteners, getting enough fibre can take effort.

Soluble vs. insoluble fibre

Soluble fibre dissolves in water and gastrointestinal fluids when it enters the stomach and intestines. It is transformed into a gel-like substance, which is digested by bacteria in the large intestine, releasing gases and a few calories.

Insoluble fibre does not dissolve in water or gastrointestinal fluids and remains more or less unchanged as it moves through the digestive tract. Because it is not digested at all, insoluble fibre is not a source of calories.

What are the benefits of fiber

The health benefits of dietary fibre are plentiful. Some of the main ones are listed here.

Benefits of soluble fibre

- **Lowering fat absorption and helping weight management:** As a thick, spread-out gel, soluble fibre blocks fats that would otherwise be digested and absorbed.

- **Lowering cholesterol:** Soluble fibre prevents some dietary cholesterol from being broken down and digested. Over time, soluble fibre can help lower cholesterol levels or the amount of free cholesterol in the blood.

- **Stabilizing blood sugar (glucose) levels:** Just as it prevents fats from being absorbed, soluble fibre slows down the digestion rate of other nutrients, including carbohydrates. This means meals containing soluble fibre are less likely to cause sharp spikes in blood sugar levels and may prevent them.

- **Reducing the risk of cardiovascular disease:** By lowering cholesterol levels, stabilizing blood sugars, and decreasing fat absorption, regularly eating soluble fibre may reduce the risk of heart disease and circulatory conditions.

- **Feeding healthy gut bacteria:** Some soluble fibre-rich foods feed gut bacteria, as it is fermentable in the colon, and so it helps the bacteria thrive longer.


Image © iStock.com/Yulia_Davidovich

Insoluble fibre

• **Preventing constipation:** As an indigestible material, insoluble fibre sits in the gastrointestinal tract, absorbing fluid and sticking to other by-products of digestion that are ready to be formed into the stool. Its presence speeds up the movement and processing of waste, helping prevent gastrointestinal blockage and constipation or reduced bowel movements.

• **Lowering the risk of diverticular disease:** By preventing constipation and intestinal blockages, insoluble fibre helps reduce the risk of developing small folds and hemorrhoids in the colon. It may also reduce the risk of colorectal cancer.

Soluble and insoluble fibre

• **Feeling satiated or full longer after meals:** Soluble fibre slows down how quickly foods are digested, meaning most people feel full longer after fibre-rich meals. Insoluble fibre physically fills up space in the stomach and intestines, furthering the sensation of being full. These properties can help people manage their weight.

• **Helping lower disease risk:** Due to fibre's many health benefits, a high-fibre diet is associated with a lower risk of many diseases, including obesity, cardiovascular disease, diabetes, metabolic syndrome and others.

Good sources of fibre

The nutrition label on food packaging lists the amount of dietary fibre found in each serving of the product. If a product is marketed as being high in fibre or having associated health benefits, the amount of soluble and insoluble fibre in grams (g) per serving must be listed under the dietary fibre heading. Some manufacturers may also voluntarily give the soluble and insoluble content of the fibre element of the product. According to the FDA, foods that are considered high in fibre contain at least 20 percent of the recommended daily value (DV) of dietary fibre per serving. Foods that have 5 percent or less are considered poor sources of dietary fibre.

Beans, peas, and whole grains are high in fibre. Some fruits and vegetables are also relatively high in fibre.

Common foods that are good sources of fibre include:

• cooked navy beans (1/2 cup contains 9.5 g)

• 100 percent ready-to-eat bran (1/2 cup contains 8.8 g)

• canned kidney beans (1/2 cup contains 8.2 g)

• cooked split peas (1/2 cup contains 8.1 g)

• cooked lentils (1/2 cup contains 7.8 g)

• cooked pinto/black beans (1/2 cup contains 7.8/7.5 g)

• cooked artichoke (one whole artichoke contains 6.5 g)

• cooked white beans/chickpeas/great northern beans (1/2 cup contains 6.3-6.2 g)

• mature soybeans (1/2 cup cooked contains 5.2 g)

• plain rye wafers or crackers (2 crackers contain 5.0 g)

• baked sweet potato with the peel (1 medium potato contains 4.8 g)

• raw pear or Asian pear (1 small pear contains 4.3-4.4 g)

• cooked green peas (1/2 cup contains 4.4 g)

• whole wheat English muffin/bread (1 muffin or 2 slices contains 4.4 g)

• cooked bulgur wheat (1/2 cup contains 4.1 g)

• raw raspberries (1/2 cup contains 4.0 g)

• boiled sweet potato without the peel (1 medium potato contains 3.9 g)

• baked potato with the peel (1 medium potato contains 3.8 g)

• stewed prunes (1/2 cup contains 3.8 g)

• dried figs or dates (1/2 cup contains 3.7-3.8 g)

• raw oat bran (1/2 cup contains 3.6 g)

• canned pumpkin (1/2 cup contains 3.6 g)

• cooked spinach (1/2 cup contains 3.5 g)

• shredded ready-to-eat wheat cereals (1 ounce contains 2.8-3.4 g)

• raw almonds (1 oz. contains 3.3 g)

• raw apple with the skin (1 medium apple includes 3.3 g)

• cooked whole wheat spaghetti (1/2 cup contains 3.1 g)

• raw banana or orange (1 fruit contains 3.1 g)

A healthful diet contains a mix of both soluble and insoluble fibre. Soluble fibres are more common in foods, such as beans, peas, oats, barley, apples and citrus fruits. Good sources of insoluble fibre include beans, whole wheat or bran products, green beans, potatoes, cauliflowers, and nuts.

While many fibre supplements exist, most do not contain the additional vitamins and minerals, including vitamin B and iron, found in fibre-rich foods. Supplements may also not be, as easily or fully absorbed by the body.

How do I make sure I am getting enough fibre?

It is helpful to keep some simple rules in mind when shopping or preparing meals.

Good tips for increasing fibre intake include:

• Picking products that have whole grains close to the start of their ingredients list.

• Choosing foods naturally rich in fibre over supplements, such as Metamucil, Citrucel, and others.

• Eating beans, peas, or lentils on a daily basis.

• Eating at least one food daily that contains 20 percent DV per serving.

• Consuming fruits and vegetables with their skins or peels intact when possible.

• Looking up the best way to eat specific foods. The amount of dietary fibre in many foods changes, depending on whether they are raw, cooked, stewed, steamed, fried or baked.

• Picking unrefined grain and cereal products to include regularly in a diet.

• Picking whole fruits and vegetables rather than juices
.

• Adding beans, peas, and lentils to soups and salads

• Adding more beans, peas, or lentils than meat, or making them the main ingredient when preparing pasta dishes, casseroles, or stir-fry.

• Making dips or spreads out of chickpeas, beans, peas, lentils, and other pulses.

• Eating unsalted nuts, seeds, or dried fruits as snacks, or sprinkling them over cereals, salads, or yogurt.

• Starting the day with whole grain breakfast options, especially 100 percent ready-to-eat bran.
• Picking brown rice above the white variety.

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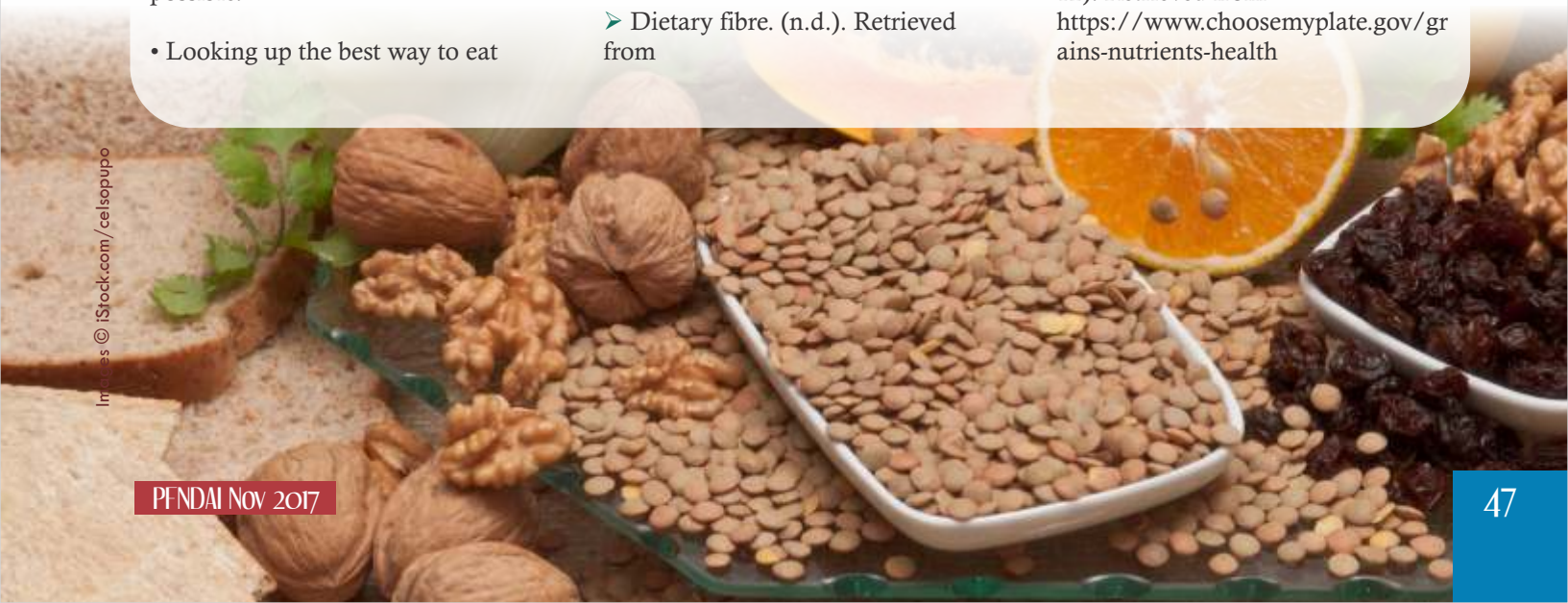

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Are mangos the nutrient filled super-food we need for better health?

By Emma Jane Cash 13-Sep-2017 - NutraIngredients

Mangos have been shown to have anti-inflammatory and anti-oxidative properties according to a comprehensive review of all available science literature on the fruit.

Published in the May issue of Food & Function, the review examines the nutrient profiles of mangos and their health boosting properties, including better nutrient intake and diet quality. The research suggests that consumption of mangos is important for glycemic control and the microbiome, as well as vascular, brain, skin and intestinal health. Mangos contain 60 calories/100 g, are a source of vitamins A and C, as well as fiber, and are mainly used in salsas, fruit salads, chutneys and ice creams.

According to the authors of the review, this is the first review focusing on the flesh and pulp of the mango, as previous papers have concentrated on the bark, leaves, peel and seeds of the fruit. Combatting obesity and diabetes "Not only are mangos one of the popular fruits in the world, they contain a variety of essential nutrients and distinctive bioactive components that may play a role in supporting metabolic functions including anti-inflammatory activity," said Britt M. Burton-Freeman, PhD, MS of the Center for Nutrition Research, Institution for Food Safety and Health, Illinois Institute of Technology, and lead author of the paper.

The fruit is also a source of phytochemicals, including phenolic acids, mangiferin, carotenoids and gallotannins, which have suggested health benefiting properties such as anti-inflammation, antioxidant, anti-diabetic, anti-obesity and anti-cancer.

With the prevalence of obesity and diabetes increasing worldwide over the past two decades, a solution to reducing both diseases has never been so important. Researchers are hoping that eating more mangos could be this solution due to their ability to aid nutrient intake. The review found 11 articles studying the effects of consuming mango flesh on obesity and in particular looked at seven different human trials where mango was fed to individuals with type 2 diabetes or who were obese.

Results from these trials have suggested that eating mangos could moderate glucose response in people with diabetes mellitus. Further research is needed to better understand the full impact of mango consumption on those at risk for diabetes, however in animal studies mango consumption has been shown to reduce risk factors of both cardiovascular disease and diabetes. In these animal studies, mango consumption reduced total cholesterol, total cholesterol to high-density cholesterol ratio, triglycerides and glucose concentrations.

Emerging areas of mango health benefits The review has also shed light on some emerging health benefits of mango consumption, including brain, skin and intestinal health. Due to the potential neuroprotective activities of mangos, animal studies have suggested that eating the fruit could support brain health.

Previous studies in cell culture and animal models have suggested that mangiferin and gallotannin, two phytochemicals found in mangos, have the ability to restore mitochondrial membrane potential in neuronal cells, which could prevent against Alzheimer's disease. The review comments that all relevant data supports the understanding of mango fruit having many health and protective benefits to the brain.

Despite there being few research papers on the subject, the review has found that the little that does exist suggests mangos are also good for the skin, especially when it comes to ageing.

The authors say the data looks "promising" and shows that the hydrophilic and lipophilic components of mangos inhibit the increase in epidermal thickness and epidermal hypertrophy, as well as protected the skin against UVB induced collagen fiber damager and increased collagen bundles. Reductions in collage damage and loss can help to maintain a healthy and young appearance, with fewer wrinkles.

Finally, the review pointed at promising data on the effects of mangos on intestinal health, particularly in helping to prevent against ulcerative colitis, a form of inflammatory bowel disease. Mice studies have suggested that mangos have benefits for the microbiome, however the authors conclude that more research needs to be conducted to fully understand its effects on humans.

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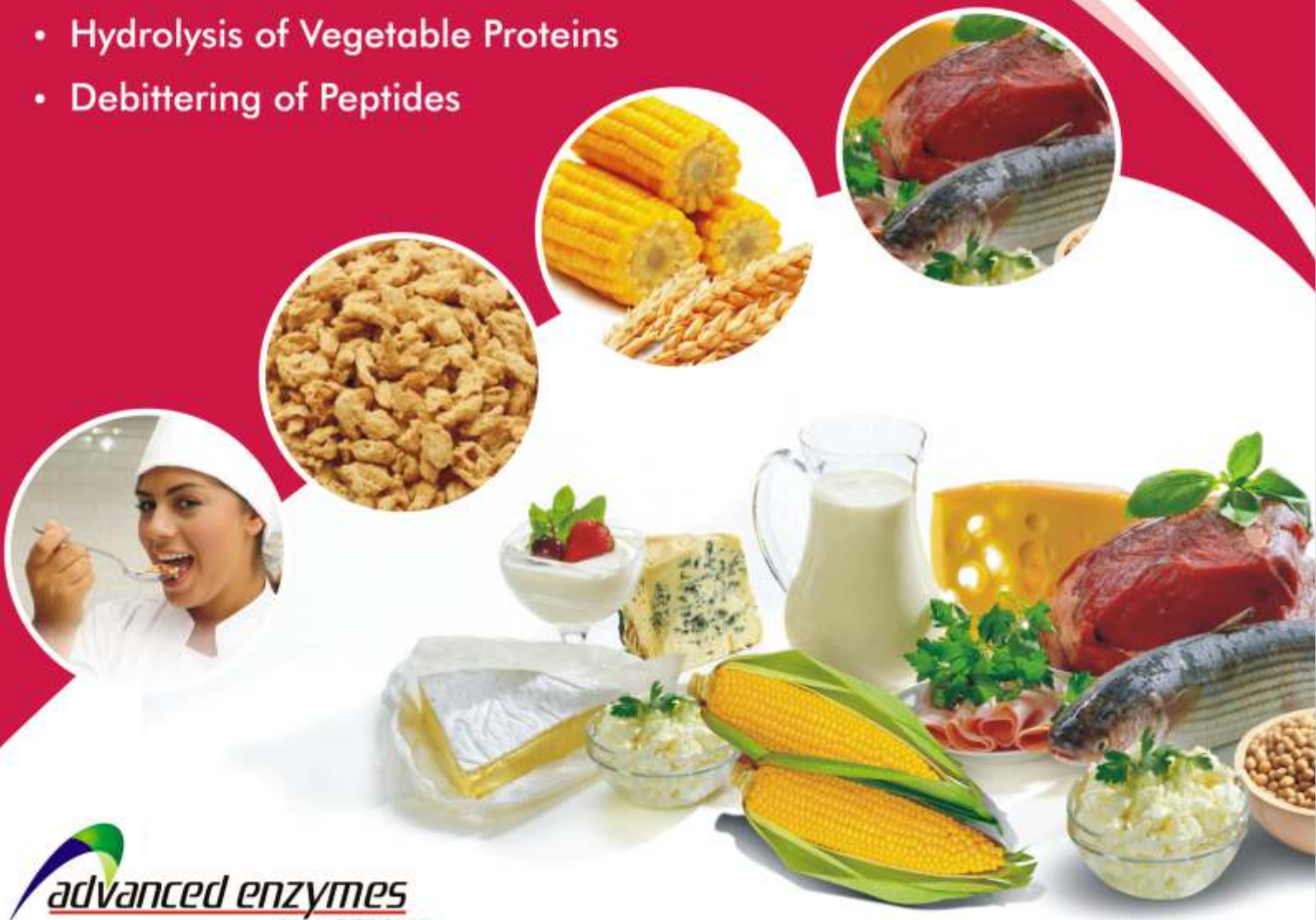

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