NOV 2018

PFNDAI Bulletin

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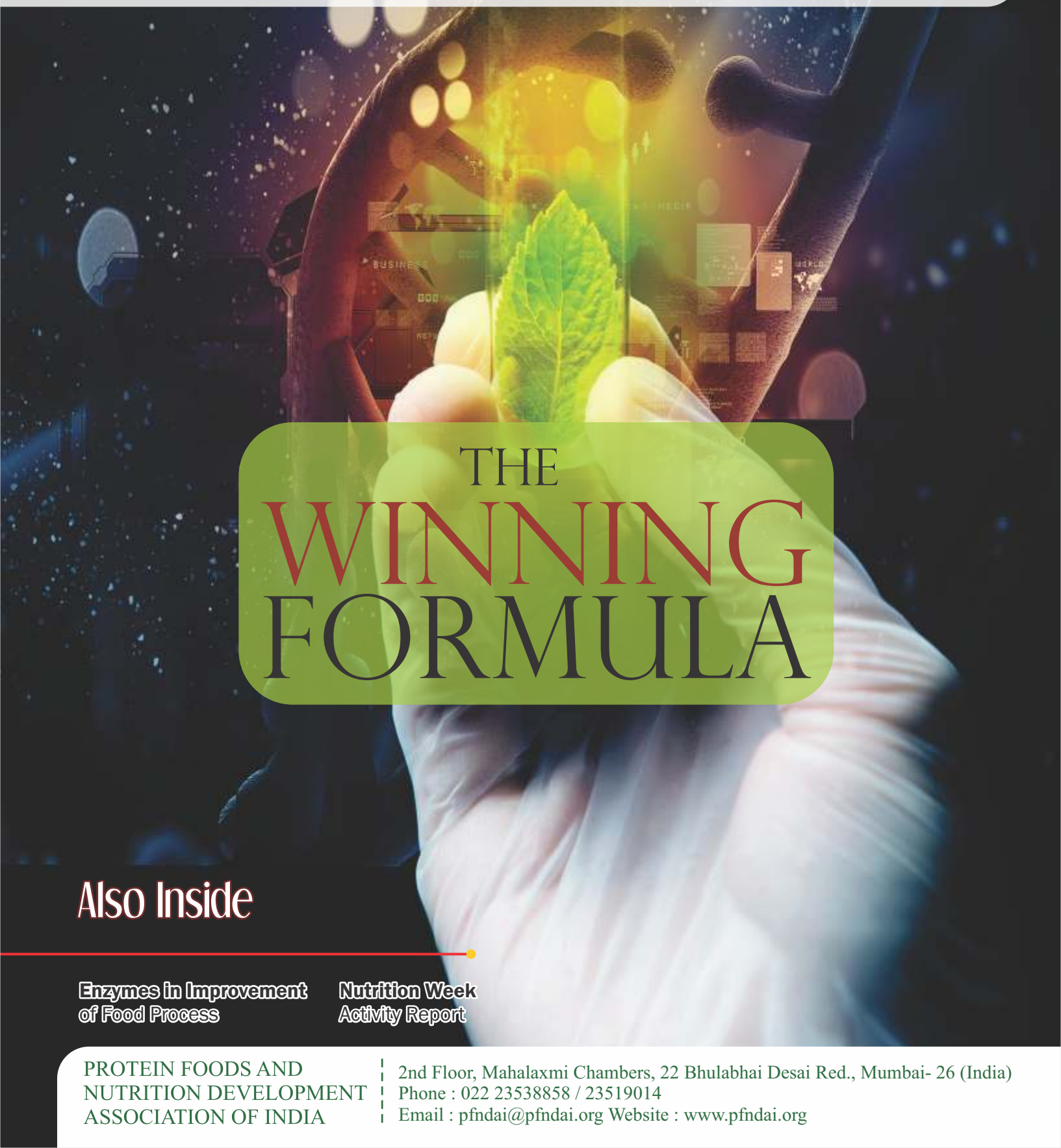
FOOD, NUTRITION & SAFETY MAGAZINE



THE WINNING FORMULA

Also Inside

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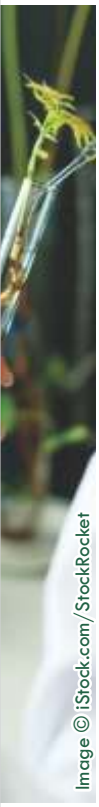
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EDITORIAL

New regulations on Advertisements & Claims have been notified and will come into force on July 1, 2019. This is a long awaited regulation and several terms have been defined and/or clarified. The manufacturers can now make a lot of claims such as the food is natural or fresh or is rich in particular nutrient or is free of some undesirable ingredient.

We are planning to have expert articles and opinions in our magazine soon to help our members and other readers to understand the implications of the regulations and what claims they can or cannot make.

Earlier there used to be claims like reduced in salt or sugar to attract people trying to lower their consumption of sugar and/or salt. However, it was noticed that even though a very small reduction was made one could make this claim as there was no regulation governing these claims. However, now there are conditions given before one can make such claims.

In nutrient claims, both content claims as well as comparative claims can be made. However, there are conditions defined for both, so earlier vagueness has somewhat gone and consumers now may understand better these nutrient claims.

There are some health claims allowed for foods. However, while making these, the manufacturers cannot make claim that the food can prevent, alleviate, treat or cure a disease. That would be the function of a medicine. However, a disease risk reduction claim could be made either in specified conditions given therein or if it could be scientifically substantiated as laid down in the regulations.

A new feature is that certain claims like natural, fresh, pure, original, traditional, genuine, real etc. have been allowed to be used under specified conditions. However, certain words and phrases like home-made or home cooked will not be permitted to be used as they give erroneous impression to consumers.

There is a claims approval procedure given in the regulations which will be followed and there will be fees charged for this process.

It would take a little while before industry adequately understands the implications of these and will find restrictions or difficulties if any which would be brought to the notice of regulators. In the meanwhile, many companies will start advertising their products with these new regulations.

Since there are many new products allowed with health benefits and there are many health claims allowed under these regulations, we expect that there will be substantial growth in this category of food products. Indians are affected by many lifestyle diseases such as hypertension, heart diseases, type 2 diabetes, and others. They would be happy to get food products that would reduce the risk of such diseases. They would like to make changes in their diets by adjusting certain nutrients and control ingredients. Such declaration may be useful in this. Hoping for better consumer health,

Prof. Jagadish S. Pai,
Executive Director,
PFNDAI

THE WINNING FORMULA

By
Poornima Shankar, Sr Research Scientist,
Functional Foods Division, R & D,
The Himalaya Drug Company, Makali, Bangalore

The world of functional food is an exciting emerging area of unique food products. It is a world of promises, anticipation, hope, motivation and challenges! It is a story of passion delivered!

Functional foods offer to consumers, the anticipation of not just the mundane nutrients but, something extra that helps them stay healthy and strong. For businesses, it is a story of hope, of differentiating by bringing something novel that merges the knowledge of forgotten benefits of everyday ingredients with contemporary science. For marketing teams, it motivates through USPs with key differentiators that promise to stand out in the crowded shelf space of similar products in the category.

The Food Safety and Standards Actallows the use of plants or botanicals or their parts in the form of powder, concentrate or extract in water, ethyl alcohol or hydro alcoholic extract, single or in combination to be added in functional foods. FSSAI also dictates through its list of plant or botanical ingredients, the permitted plant parts, range of usage in terms of raw herb/ material per day for adults & children, and type of extracts that can be used. This may sound restrictive however, it somewhat eases the job of formulators in making their decisions. *"Development of formulations with botanicals are often guided by ayurvedic experts who also recommend dosages and phytochemists who provide authentic stable extracts."*

Pharmacognosy and phytochemistryteams screen agri-sources of herbs,check their authenticity, sustainability, ecological impact, markers and their standardization. It is critical to evaluate contamination and adulteration to reduce bio-burden, meet standards for heavy metals and ensure safety of the ingredients sourced and also provide alternate sourcing.Identifying the analytical markers as well as the bioactive makers, which may or may not be the same compound, is important to ensure potency, safety and efficacy of the phyto extract.

It is recommended to use whole part of the plant extract versus using the single isolated bioactive of the plant. This is because, smaller, distinctive bioactive compounds often, acting as bioactive enhancers which also contribute to the benefits provided by the herb and their inclusion is useful to provide a holistic approach that mimics the consumption of the herb naturally. Using whole part of the plant extractis known to nullify the possibility of side effects which is the bane of many allopathic formulations.

Functional foods is an area that food formulators aspire to get their hands into, experience, learn and come out with the winning formulation after going through the rigour and heart breaks with a good dose of challenges thrown in!


Image © iStock.com/StockRocket

Formulators discover creative ways of using the most optimum technology and know-how to make a product with the best shelf life, delivering the dosage of health benefitting phyto-extracts in a food matrix, without compromising on taste and acceptability! It's a mouthful, to deliver the healthful! Yet, the last phrase needs to be underlined as it is indeed a tall order. Most phyto-extracts are unique in their sensorial profiles and have the ability to change the sensorial quality of a food.

The challenge for food formulators usingphyto-extracts is that most extracts have a distinct taste and flavor note. This is often outside the range of acceptability to the consumer's expectation of a food. The common notes in phyto-extracts observed are woody, grassy, hay-like, astringent, bitter, acidic and flavours of the forest or green, of the soil, raw or uncooked. Many also have a distinct colour note as well. Formulators use skill to mask, reduce, integrate or harmonize with other ingredients to make it tasty and acceptable. They carefully test the individual behavior of phyto-extracts in water and other food matrices. They also have to study their synergism with other food ingredients, potency, efficacy and shelf life vis-à-vis the sensorial aspects in the product.

The important factor is to keep raw materials cost low so that margins are profitable to the business. This is also another challenge when it comes to sourcing of phyto-extracts which are limited and often restrictively available commercially.

Market positioning, claims and branding is another story for another day.As Winston Churchill once said, "Success is the ability to go from one failure to another with no loss of enthusiasm." Experimental failures are all too common but, rising again, learning and finding that one winning formulation that is superlative, that gives the consumer the "aha" momentreflects the true passion of the entire team involved from the concept idea to thegrowthof the functional food category! The secret of the winning formula is to never give up!

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COMING EVENTS

Platinum Jubilee Conference of All India Food Processors' Association
Food Sustains Life, Processing Sustains Food
December 20-21, 2018
Vigyan Bhawan, New Delhi
T: +91-11-2651 0860
E: aifpa75pjc@gmail.com

Food Tech Pune 2019
February 23-24-25, 2018
HA Exhibition Ground
Pimpri, Pune
T: 011-2953 5593/5872
E: foodtechpune@gmail.com
W: www.foodtechpune.com

24th FAFAI Seminar on India: The New Growth Story
January 18-20, 2019
Lulu Bolgatty Intl Conv Centre, Cochi
T: 022-22090184/22076075
E: fafailaya@gmail.com
W: www.fafai.org

Food Proteins Asia 2019
January 22-23, 2019
Bangkok, Thailand
E: huiyan@cmtsp.co.sg
W: www.cmtevents.com

Vitafoods Europe
A Brave New World in Nutrition & Food Safety
May 7-9, 2019
Palexpo, Geneva
E: info@informaexhibitions.com
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52% DHAAKAD PROTEIN

GOOD BUY!
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GOODBYE!
INDIA'S PROTEIN-DEFICIENCY.

A 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, milk etc. Moreover, the steep cost (per 100 gms of protein) of these sources makes it even 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, which we call '52% Dhaakad Protein'. 200 grams of soya contains 52% protein which is equivalent to 15 bowls of cooked daal or 16 boiled eggs or 17 glasses of cow's milk. 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!

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*Source: The Times of India, July 2017

Loggerheads_2018

ENZYMES IN IMPROVEMENT OF FOOD PROCESS

Almost all food products may contain at least one ingredient made from an enzyme.

The enzymes have key role in food and beverage processing in many different ways. They affect processing conditions accelerating the process, and changing properties and functions of final product. As they do not appear or have a role in the final product, they are considered as processing aids and not food additives. Thus they are not listed in the ingredient list.

Use of enzymes was known in ancient times although their importance was not recognized until 19th century when Danish chemist Christian Hansen obtained rennet from stomach of ruminant animals which was then scaled up to factory level. Currently, one can choose from a large number of specially designed enzymes or their blends to improve bread texture, improve cheese flavours, clarify juices among other things. The enzyme supplier works with R and D personnel to optimise formulation and provide the right enzyme or combination to use.
Bakery Products

Bakers face many challenges in their processes affecting dough as well as final product. Dough maybe too sticky, has a weak structure, or reduced elasticity. Bread may harden rapidly, cakes with poor crumb structure and crackers may become tough. Enzymes amylases, xylanases and proteases can help avoid these problems resulting in improvement of process and the product quality.

Some enzymes are specially formulated to solve specific challenges in baking applications. Xylanases change insoluble hemicellulose in dough into soluble one that would have a major effect on gas retention of the dough. This is done by supporting gluten network formation and stabilising its structure. Xylanases produce stable and fluffy bread dough and loaves having good volume with a soft and elastic crumb.

Amylases are used in baking and they affect dough fermentation. They hydrolyse starch creating sugars which are used by yeast during fermentation. They improve dough processing, baking volume and crust browning. Some amylases may also work synergistically with xylanases. Some fungal amylases regulate gassing and accelerate fermentation. They are also used to smoothen natural amylase variation in flour from different regions and crop varieties to provide uniform baking results.

Baker may at times use higher protein flour or may want a particular dough relaxation for specific application. Proteases are available that target specifically gluten network for desirable degree of relaxation without gluten network or losing gas-holding capacity. Alternatively they may target broadly gluten network for strong relaxation effect. On the other hand with low protein content, special dough-strengthening enzymes namely trans-glutaminasesstabilise network with covalent bonds to produce stable dough. This increases both dough elasticity and fermentation tolerance.

There is gluten-free trend in certain consumer segments and it has caused bakers to rethink bakery formulations and ingredients used. Bakers know that removal of gluten affects negatively the texture. It takes a lot of work and trials to formulate gluten-free bakery products with good texture close to conventional products.

Most consumers say that the moistness and softness of gluten-free bread needs improvement. Ingredient suppliers have hydrocolloid systems to emulsifiers and even enzymes for process and sensory quality improvement of gluten-free bakery products. Bakers now can choose amylase, protease, amyloglucosidase, xylanase and glucose oxidase or a combination.

Enzymes can also improve processibility of doughs, enhance structure of biscuits, and reduce tendency of cracking and blistering. They can also improve appearance of wafers and their mechanical stability. There are also enzymes for pasta which can help make products from hard or soft wheat giving better tolerance to prolonged cooking times. Enzymes can also help make dried noodles mechanically strong.

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4. NUTRITION REMAINS LOCKED

*All India (Urban + Rural) Market share of Aashirvaad Atta based on Nielsen Retail Audit MAT May 2017.


Image © iStock.com/michaelpuche

There are also enzymes that help prevent formation of acrylamide in French fries, pastry products, and bread. There is also an enzyme which helps reduce salt in bakery products by maintaining the stability and machinability of dough in salt-reduced formulations. There is a lipase that improves dough stability, increases volume and helping dough handling. A bacterial xylanase strengthens dough too and a cellulase improves both dough proofing and the overall bread quality.

Enzymes for Sugar Reduction

Enzymes also help meet two specific food trends namely sugar reduction and fibre inclusion. There are major reformulation efforts for manufacturers. Carbohydrate modifying enzymes have been developed specially for reducing added sugar in products and to enrich products with fibre. Range of enzymes consisted of enzymes specifically active on pectin, xylan and mannan, allowing them to add value to various food applications. Some of the functions of these enzymes include building polymers and oligosaccharides from simple monomeric and dimeric sugars or reducing large complex polymers to smaller oligosaccharides for use as soluble fibre or bulking agents.

Cheese Improving Enzymes

Enzymes are quite useful in dairy industry as they help to increase the cheese yield, enhance texture, taste and flavour and also produce lactose-free products. Lactase converts lactose to glucose and galactose for producing lactose-free dairy products for those who are lactose intolerant. Rennet facilitates separation of curd from whey in cheese making. In cheese manufacture it is important to consider carefully the source of enzyme and the function it provides in the process.

Animal enzymes, fermentation-produced chymosin, and lipases from A. niger or Mucorjavonicus are commonly used in cheese making. Lipases and proteases from Rhizopus and yeast sources can be used for flavour development in cheese but are less commonly used. These enzymes are used in specialty cheeses and flavouring applications. One company has developed a rennet from thistle flower, Cynaracardunculus. This is standardised to provide consistent milk clotting for cow, buffalo, goats, sheep and camel milks. It clots or hydrolyses alpha, beta, kappa and gamma caseins whereas microbial-derived rennet tends to clot only kappa casein.

Other types of enzymes help create flavours and textures that differentiate their cheeses from others. One lipase accelerates development of sharp and piquant flavours by hydrolysing milk fat triglycerides. Another enzyme bovine chymosin maintains cheese texture over shelf life, especially for mozzarella, string cheese and cheddar by slowing the proteolytic activity of cheese. One microbial coagulant has high thermolability and is used in Swiss cheeses and hard cheeses like Parmesan and pecorino. Some animal lipases are used as ripening enzymes to develop flavours in various Italian cheeses, blue cheese, feta cheese and others. Some proteases increase ripening times and optimise taste characteristics in various natural ripened cheeses and enzyme-modified cheese.

Sources of Enzyme

Enzymes used in food industry are derived from animal, botanical and microbial sources. Typically in cheese making enzymes from animals specifically proteases from calf, goat or sheep are used as rennet. Lipases also from animals are used in flavour development. Two most common enzymes from botanical sources are papain, a protease from dried latex of papaya and bromelain, a protease extracted from mature pineapple plant stem. Both are used in meat tenderizers. Ficin from latex of figs was also used for protease in the past but shortages of figs curtailed its use.

Enzymes can be derived from microbial sources through fermentation. Microbes could be bacteria, fungi or yeasts. Some common ones for food applications are Bacillus coagulans, Aspergillusniger and Saccharomyces cerevisiae. Enzymes from different source organisms may work on same substrate but they may work at different pH and temperature ranges and the way they cleave the substrate at different points so may be used for different applications in different products.

Some enzymes are used to change properties of foods such as viscosity or solubility. Proteases increase solubility and reduce viscosity.

Enzyme β-fructofuranosidase is used for FOS production, β- 1,3-glucanase is used for yeast cell wall hydrolysis and an invertase from fungal source rather than yeast source is used because of greater heat stability and ability to work at low pH level. This invertase is used for making candy with natural red colours as well as for added sweetness and softness in bakery products.

(Extracted from article by Karen Nachay in Food Technology March 2018)

NUTRITION WEEK ACTIVITY REPORT BANGALORE

ADDRESSING INDIA'S BURNING ISSUE: UNDERNUTRITION DURING THE FIRST 1000 DAYS OF THE CHILD

Image © iStock.com/VikramRaghuvanshi

By
Dr. Sangeeta Pandey,
Associate Professor & Head,
Department of Nutrition & Dietetics,
Mount Carmel College

Protein Foods and Nutrition Development Association of India (PFNDI) in collaboration with The Department of Nutrition and Dietetics, Mount Carmel College, AutonomousBengaluru has taken the onus to conduct a Nutrition Awareness Activity anda Seminar on the occasion of National Nutrition Month- September 6th, 2018 to ensure focussed interventions on addressing Undernutrition during the first 1000 days of the child for better child health.

The Program was scheduled at the interest for students exclusively pursuing under graduate and Post graduate course in Food Science and Nutrition, Nutrition and Dietetics and Home Sciencecolleges in Bengaluru. It began with intercollegiate competitions such as Nutrition Recipe Contest-"Nutrient dense recipe supporting growth"and Quiz competition which was based on the theme "Malnutrition in Children". The highlight of the Program was the seminar on "Malnutrition in Indian Children" professed by Dr. Giridhar Babu, Additional Professor from Public Health Foundation of India; Mr. Pranjal , Head- Sustainability , Novozymes South Asia Pvt.Ltd. and Dr. Ramasubaramanian, VR Food Tech

Dr. Giridhar Babu enlightened the audience on Life course trajectories of undernutritionand specified importance of measuring psychosocial stress in pregnant women as well as tackling undernutrition at the immediateenvironment of the child and cultivate the culture of healthy eating. On the other hand, Mr. Pranjal had addressed the role of integrating biotechnology with food processing to combat malnutrition by providing critical components of nutrition in food and had also emphasised on food wastage foot print as one of the key factors contributing to malnutrition. Post lunch , the session by Dr. Ramasubramanian focussed on an approach to combat malnutrition through protein fortification and brought out the reality of protein deficiency not being just a poor man's problem but also emphasising on the other end of the spectrum is affected . The idea of formulating protein in food products at the household and industrial level had also been stressed in order to eliminate junk food which he calls it as "treat food" and make food trendy to improve the nutrition status.

With the agenda of improving the quality of diet to better the health status of children , the program concluded with a valedictory ceremony that involved the distribution of prizes to the winners of the competitions held at the interest of enriching the minds of young students with innovative ideas that strategizes to overcome the India's burning issue i.e. Malnutrition.

Dr. Geetha Santhosh giving opening remarks

The Hosting Delegates

Recipe Contest

Inaugural Ceremony

The Participants

Registration

Quiz

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REGULATORY ROUND UP

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

Dear Readers

The big-ticket regulation on "Advertisement and Claim" is out. An attempt is made to summarize some salient features of the regulation. Readers are encouraged to read the regulation carefully to assess its impact on their products and advertisements. This round up also includes other important final notification on other food products.

Your feedback is much awaited in order to improve this column.

Standards

Regulation on Claim and Advertisement is notified and comes into force by 01 July 2019.An all-important regulation. The regulation defines "claim" as "means any representation which is printed, oral, audio or visual and states, suggests, or implies that a food has particular qualities relating to its origin, nutritional properties, nature, processing, composition or otherwise". It is an all-encompassing definition which includes, apart from label, all forms of marketing tools. The regulation also defines terms like "Sugars", "Nutrient", "Nutrition claim", "Health claim", etc.

Nutrition claim is classified into "Nutrient Content claim" and "Nutrient Comparative claim". Nutrient content claim makes a statement on the level of a nutrient in the product. This statement could be in words like "Rich in", "source of", "low", "free", etc. Schedule I of the regulation specifies the condition, in terms of quantity of the nutrient per 100g or 100ml of the product, to make such claims. Nutrient comparative claim compares the level of nutrient in two different products which are either same or similar. Here again conditions are laid to make such comparative claims. Non-addition claims like "No added sugar", "No added salt" have been clearly defined and conditions stipulated. Gone are the days when glucose is added to the product and "No Added Sugar" is claimed on the label.

Health claim is subdivided into "Nutrient function claim" (relation between a nutrient and the physiological function), "Other function claim" (when a food or its constituent has a positive role in health or an improvement in the physiological function) and "Disease Risk Reduction (DRR) claim" (when a food or its constituent reduces the risk of a disease). Conditions for these claims are defined. Schedule III lists permitted DRR claims. Any DRR claim, not in this list, requires prior approval from the Food Authority. No claim, to the effect that the food cures, prevents or alleviate any disease, can be made. Many other prohibited claims are listed.

Health claims which is attributed to ingredients or the constituents of the food can be substantiated through well-established scientific principles. If the health claim is based on the whole product, then such claims are to be substantiated through clinical trials and should be published in peer reviewed journals.

Claims like "Pure", "Natural", "Traditional", "Real", etc have been defined and conditions are laid down for such claims in Schedule V of the regulation. In case a brand or trade of a product has these words and does not comply with the conditions, then certain disclaimers are required to be made.

On the whole it is an interesting regulation with lot more clarity. The readers are urged not to just read but apply the conditions to real life examples. Many conditions in the regulation became clearer once I applied to products in the market.

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For details, please contact our India partner VR Food Tech Private Limited, Mumbai.
Dr. Ashlesha Parchure: ashlesha.parchure@vrfoodtech.com

DECERNIS

Final notification prescribing standards for formulated supplements children for above the age of 24 months and below 36 months. The regulation lists the ingredients that are to be used along with essential requirements in terms of macro and micro nutrients. A permitted list of food additives that can be added is also included.

Final notification amending the standards of Rapeseed oil, kachighani oil, Hydrogenated vegetable oil and introducing standards for Palm kernel Stearin, Palm Kernel Olein, Palm Superolein and fatty acid composition of different oils.

FSSAI has issued the final notification prescribing the standards for Fresh/Chilled/Frozen pork, beef, mutton, chevon (goat meat) and poultry meat; fresh eggs, live and raw bivalve molluscs, sturgeon caviar. The notification also includes standards for fish sauce, quick frozen fish sticks, fresh and quick frozen raw Scallop products. Microbiological requirements for meat and meat products are revised.

FSSAI has issued the final notification amending the standards of existing products as well introducing standards for new products. The standards of cocoa powder, tomato ketchup and tomato sauce have been amended. Standards for thermally processed fruit salad/cocktail/mix, pepper paste, quick frozen French fries, edible fungus products, vegetable soybean products like soy isolate, chocolate liquor/cake, etc. have been introduced.

FSSAI has issued the final notification specifying standards for milk protein concentrate, cow or buffalo colostrum and colostrum products.

Draft notification introducing standards for goat/sheep milk, whey cheese and amending standards for Channa and paneer

Draft regulation introducing standards for decaffeinated roasted and ground coffe and decaffeinated soluble coffee powder.The regulation also proposes to amend the permissible limits of calcium and magnesium in packaged drinking water.

A draft regulation issued by FSSAI proposes to amend the limits for metal contaminants and mycotoxins in different foods and food categories .

A draft regulation with regard to labelling of beverages containing high intense sweeteners sold through vending machines. The draft regulation proposes thata display or label with respect to artificial sweetener be placed on the cup or container in which the product is served and also prominently on the vending machine as per the labelling requirements prescribed under the regulation 2.4.5 (24, 25, 26, 28 and 29) of Food safety and Standards (Packaging and labelling) Regulation,2011.

Notices/Orders/Reports

FSSAI has published the interim report on the national survey done on the quality and safety of Indian milk. The samples were analysed for compliance with standards of identity, adulterants, microbial toxins , antibiotic residues, etc

RESEARCH IN HEALTH & NUTRITION

Lifestyle intervention may mitigate weight gain due to ubiquitous contaminant

September 25, 2018 Science Daily

A new study finds that perfluoroalkyl and polyfluoroalkyl substances (PFASs) are associated with increases in weight, but exercise and diet may reduce the obesogenic effects of these environmental contaminants.

The study, entitled Association of Perfluoroalkyl and Polyfluoroalkyl Substances with Adiposity, led by researchers from the Harvard Pilgrim Health Care Institute and the Harvard T.H Chan School of Public Health (HSPH) was published on August 31 in JAMA Network Open. PFASs are a group of synthetic chemicals that are detected in over 95% of the U.S. population. These substances have been used in non-stick cookware, oil- and water-resistant textiles, greaseproof food packaging, personal care products, floor polish, and fire-fighting foams and as industrial surfactants among other applications. Exposure to PFASs occurs through direct and indirect sources including contaminated drinking water and food, personal care products, soil, dust, and air. The study sought to determine the extent to which PFASs are associated with increases in weight and body size and to evaluate whether a lifestyle intervention of exercise and diet, modifies this association.

The prospective cohort study included 957 individuals who participated in the Diabetes Prevention Program Outcomes Study and were followed for approximately 15 years. Study participants who were randomized to a lifestyle intervention group received training in diet, physical activity, and behaviour modification.

Participants randomized to placebo were given standard information about diet and exercise. The investigators found that among adults at high risk for diabetes, higher plasma PFAS concentrations were associated with a prospective and long-term increase in weight and hip girth among individuals randomized to the placebo group, but not for those randomized to the lifestyle intervention. The results indicate that lifestyle changes of exercise and diet can reduce the obesogenic effects of environmental exposures.

"Exercise and a balanced diet confer multiple benefits; our study results suggest that another added benefit is fighting the obesogenic action of environmental chemicals such as PFAS" said lead author Andres Cardenas, PhD, MPH, Research Fellow in the Department of Population Medicine at the Harvard Pilgrim Health Care Institute.

The quality of protein supplements for athletes

September 25, 2018 Science Daily

Powdered protein supplements are one of the most commonly consumed nutritional supplements, whether by professional athletes or amateurs, even by those who use them for aesthetic purposes instead of sporting ones.

This study, led by a researcher from the Area of Human Motility and Sporting Performance at the University of Seville, has analysed the quality of these products in function of their source, treatment and storage. "During the preparation of powdered protein supplements, the thermal treatment involved can reduce the nutritional value of the product, an aspect that, until now, has received little research attention. Lysine, an amino acid involved in this reaction, is transformed into other compounds that are not biologically usable.

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Image © iStock.com/ Schroptschop

In addition, according to the thermal treatment received, changes can be produced in the protein structure, which means that these supplements are less digestible for the body. Therefore, it was importance to investigate this matter deeply," explains the University of Seville teacher Antonio J. Sánchez.

The results indicate that half the supplements analysed contain more than 6% of blocked Lysine, but only 9% had a content of more than 20% of blocked lysine. In addition, the supplements with the highest concentrations of blocked lysine were hydrolysed and peptide serums (12%), while the lowest concentrations were registered by serum and casein isolates. The study also served to prove that the content of carbon hydrates as shown on the label could be an "indirect but useful" indication of the thermal damage done to milk serum supplements.

However, the experts indicate that, a priori, the consumption of protein supplements does not offer any health problems, provided that a product has complied with quality controls, is bought in a specialised and approved establishment and is made using the correct criteria. "There are increasingly more cases in which the consumption of supplements means, unknown to the consumer, the consumption of substances that can have adverse effects on their health. Therefore, nutritional evaluation must be the first step when advising sportspeople on diet strategies or the use of supplements," the researcher adds.

Nutritional evaluation must always be tailored to the individual and done by a professional who takes into account the person's detailed medical and nutritional history, evaluation of their diet, anthropometry, and analysis of their body and biochemical composition, before prescribing any supplement.

Real benefit for health and for sporting performance

According to the experts, the consumption of good quality protein supplements, as can be the case with an isolate of milk serum, can produce benefits for both health and sporting performance. There is scientific evidence that backs the idea that they can help to minimise the loss of muscle mass in old people or help those who practise sports in which strength is important to achieve an optimised level of muscle performance, for example. This study was part of a multidisciplinary project, in which more than 5,000 individuals of different profiles participated: international sportspeople, whole national teams, amateur sportspeople, gym users, etc. "Knowing what use is made of these supplements can help us to understand the legal and educational needs in that regard, and improve the information we give to society." This project had the collaboration of various Spanish, European and Latin-American universities.

Fish-rich diets in pregnancy may boost babies' brain development

September 20, 2018 Science Daily

Women could enhance the development of their unborn child's eyesight and brain function by regularly eating fatty fish during pregnancy.

This is the suggestion from a small-scale study led by Kirsi Laitinen of the University of Turku and Turku University Hospital in Finland, in the Springer Nature-branded journal Pediatric Research. The research supports previous findings that show how important a prospective mother's diet and lifestyle choices are for the development of her baby. According to Laitinen, a mother's diet during pregnancy and breastfeeding is the main way that valuable long-chain polyunsaturated fatty acids become available to a fetus and infant brain during the period of maximum brain growth during the first years of a child's life. Such fatty acids help to shape the nerve cells that are relevant to eyesight and particularly the retina. They are also important in forming the synapses that are vital in the transport of messages between neurons in the nervous system.

In this study, Laitinen and her colleagues analysed the results of 56 mothers and their children drawn from a larger study. The mothers had to keep a regular food diary during the course of their pregnancy. Fluctuations in their weight before and during pregnancy were taken into account, along with their blood sugar level and blood pressure. Aspects such as whether they smoked or developed diabetes related to pregnancy were also noted.

The team recorded the levels of nutritional long-chain polyunsaturated fatty acid sources in the mother's diet and blood serum, and the levels in the blood of their children by the age of one month.

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Their children were further tested around their second birthday using pattern reversal visual evoked potentials (pVEP). This sensitive and accurate, non-invasive method is used to detect visual functioning and maturational changes occurring within a young child's visual system.

The subsequent analyses of the visual test results revealed that infants whose mothers ate fish three or more times a week during the last trimester of their pregnancy fared better than those whose mothers ate no fish or only up to two portions per week. These observations were further substantiated when the serum phospholipid fatty acid status was evaluated.

"The results of our study suggest that frequent fish consumption by pregnant women is of benefit for their unborn child's development. This may be attributable to long-chain polyunsaturated fatty acids within fish, but also due to other nutrients like vitamin D and E, which are also important for development," explains Laitinen.

"Our study therefore highlights the potential importance of subtle changes in the diet of healthy women with uncompromised pregnancies, beyond prematurity or nutritional deficiencies, in regulating infantile neurodevelopment," adds Laitinen, who believes that their results should be incorporated into counselling given to pregnant women about their diets.

Anti-inflammatory protein promotes healthy gut bacteria to curb obesity

New approach to weight loss and diabetes prevention

published
Science Daily September 19, 2018

Scientists from the UNC School of Medicine discovered that the anti-inflammatory protein NLRP12 normally helps protect mice against obesity and insulin resistance when they are fed a high-fat diet.

The researchers also reported that the NLRP12 gene is underactive in people who are obese, making it a potential therapeutic target for treating obesity and diabetes, both of which are risk factors for cardiovascular disease and other serious conditions. The study, published in Cell Host & Microbe, showed that NLRP12's anti-inflammatory effect promotes the growth of a "good" family of gut-dwelling bacteria, called Lachnospiraceae, that produce small molecules butyrate and propionate, which in turn promote gut health and protect mice against obesity and insulin resistance.

"Obesity is influenced by inflammation, not just by overeating and lack of exercise, and this study suggests that reducing inflammation promotes 'good' bacteria that can help maintain a healthy weight," said study senior author Jenny P-Y Ting, PhD, a William R. Kenan, Jr. Distinguished Professor of Genetics. "In mice, we showed that NLRP12 reduces inflammation in the gut and in adipose fat tissues. Although a direct causal effect is difficult to show in humans, our collaborators did help us show there are reduced expression levels of NLRP12 in individuals who are considered obese."

Image © iStock.com/Murat Deniz

In humans, NLRP12 is produced by several types of immune cells and appears to function as a brake on excessive inflammation. Ting and colleagues in recent years have published studies showing that mice lacking the NLRP12 gene are highly susceptible to excessive inflammation, including experimental colon inflammation (colitis) and associated colon cancer.

In recent years, researchers have found evidence that inflammation in the gut and in where fat is deposited promotes obesity. About 40 percent of adults and 20 percent of children and teens age 2 to 19 in the United States are considered obese, according to recent government estimates. Being obese or even overweight can lead to a host of other conditions, including heart disease, stroke, cancers, and diabetes. Ting and colleagues in this study therefore sought to determine whether mice lacking the NLRP12 gene are more susceptible to obesity. The findings showed that they are.

The scientists fed mice that lacked the NLRP12 gene (NLRP12-knockout mice) and ordinary mice a high-fat diet for several months. The NLRP12-knockout mice ate and drank no more than their healthy cousins but accumulated significantly more fat and became heavier. The knockout mice also showed signs of insulin resistance, which involves a reduced ability to clear glucose from the bloodstream and tends to follow the development of obesity.

The absence of NLRP12 in these mice led to increased signs of inflammation in the gut and in fat deposits, but it wasn't clear how this led to extra weight gain until the researchers moved the animals from one facility to another. Following standard safety protocols to prevent disease spread, the researchers dosed the mice with antibiotics before the move.

"We noticed that the mice treated with antibiotics gained less weight than the mice that stayed in the old facility," said study co-first author Agnieszka Truax, PhD, a postdoctoral researcher in the Ting lab during the study. "That led us to suspect that gut bacteria were involved in promoting obesity."

Further tests showed that when NLRP12-knockout mice were kept in a bacteria-free condition, the mice did not gain weight because there were no bacteria. The deficiency of NLRP12 didn't matter as much. This suggested that "bad" bacteria had been driving the excess weight gain during a high-fat diet. Remarkably, the knockout mice were also protected from excess weight gain when they were co-housed with control mice, hinting that "good" bacteria from the control mice were getting into them and helping to protect them.

Scientists have known that high-fat diets, as compared to low-fat diets, tend to reduce the diversity of bacterial species in the gut by suppressing some species and allowing a few others to proliferate abnormally. The UNC researchers confirmed this in their high-fat-eating mice, and they observed that the loss of bacterial diversity was much worse in the Nlrp12-knockout mice. The experiments suggested that inflammation caused by a high-fat diet and worsened by the absence of NLRP12 was a major cause of this shift. Killing off rival bacterial species allowed a sharp rise in the levels of a bacterial family called Erysipelotrichaceae. These microbes became more prominent as gut inflammation worsened and exacerbated the weight-gain from a high-fat diet when put into the guts of otherwise germ-free mice.

By contrast, the Lachnospiraceae family of bacteria, which tended to die off in mice fed a high-fat diet, appeared to be highly beneficial. The researchers fed Lachnospiraceae to NLRP12-knockout mice prior to and during three weeks of high-fat eating and found that these "good" bacteria reduced gut inflammation, eliminated the hegemony of harmful Erysipelotrichaceae, and promoted more bacterial diversity. The Lachnospiraceae also significantly protected the animals against obesity and associated insulin-resistance. "All the inflammatory and metabolic changes we had seen in the NLRP12-knockout mice during a high-fat diet were essentially reversed when we re-supplied Lachnospiraceae," Truax said.

Lachnospiraceae contain enzymes that convert carbs and fiber into small molecules called short-chain fatty acids (SCFAs). The scientists observed that two in particular, butyrate and propionate, appeared in significantly greater abundance when Lachnospiracea levels rose. Butyrate and propionate are known to have anti-inflammatory properties that promote gut health. The UNC team fed these SCFAs to the NLRP12-knockout mice and found that SCFAs protected the animals from the absence of NLRP12 just as well as the Lachnospiraceae had done.

Butyrate, propionate, and other SCFAs are already widely available as health supplements. But are these results in mice relevant to humans? A further test suggested that they are. Collaborating scientists Mihai Netea, MD, PhD, and Rinke Stienstra, PhD, from Radboud University Medical Center in the Netherlands examined fat cells from obese human patients and observed that the higher the measure of obesity -- the body-mass index -- the lower the activity of the NLRP12 gene tended to be.

Thus, treating people with "good" bacteria or the beneficial SCFAs they produce might one day be a relatively inexpensive strategy to combat obesity as well as diabetes and other obesity-driven conditions. Ting and colleagues plan to continue their investigations in that direction.

Dietary fibre reduces brain inflammation during aging

September 14, 2018 Science Daily

As mammals age immune cells in the brain known as microglia become chronically inflamed. In this state, they produce chemicals known to impair cognitive and motor function. That's one explanation for why memory fades and other brain functions decline during old age. But, according to a new study from the University of Illinois, there may be a remedy to delay the inevitable: dietary fibre.

Dietary fibre promotes the growth of good bacteria in the gut. When these bacteria digest fibre, they produce short-chain-fatty-acids (SCFAs), including butyrate, as by-products. "Butyrate is of interest because it has been shown to have anti-inflammatory properties on microglia and improve memory in mice when administered pharmacologically," says Rodney Johnson, professor and head of the Department of Animal Sciences at U of I, and corresponding author on the Frontiers in Immunology study.


Image © iStock.com/SIphotography

Although positive outcomes of sodium butyrate -- the drug form -- were seen in previous studies, the mechanism wasn't clear. The new study reveals, in old mice, that butyrate inhibits production of damaging chemicals by inflamed microglia. One of those chemicals is interleukin-1, which has been associated with Alzheimer's disease in humans.

Understanding how sodium butyrate works is a step forward, but the researchers were more interested in knowing whether the same effects could be obtained simply by feeding the mice more fibre. "People are not likely to consume sodium butyrate directly, due to its noxious odour," Johnson says. "A practical way to get elevated butyrate is to consume a diet high in soluble fibre." The concept takes advantage of the fact that gut bacteria convert fibre into butyrate naturally.

"We know that diet has a major influence on the composition and function of microbes in the gut and that diets high in fibre benefit good microbes, while diets high in fat and protein can have a negative influence on microbial composition and function. Diet, through altering gut microbes, is one way in which it affects disease," says Jeff Woods, professor in the Department of Kinesiology and Community Health at U of I, and co-author on the study.

Butyrate derived from dietary fibre should have the same benefits in the brain as the drug form, but no one had tested it before. The researchers fed low- and high-fibre diets to groups of young and old mice, and then measured the levels of butyrate and other SCFAs in the blood, as well as inflammatory chemicals in the intestine.

"The high-fibre diet elevated butyrate and other SCFAs in the blood both for young and old mice. But only the old mice showed intestinal inflammation on the low-fibre diet," Johnson says. "It's interesting that young adults didn't have that inflammatory response on the same diet. It clearly highlights the vulnerability of being old."

On the other hand, when old mice consumed the high-fibre diet, their intestinal inflammation was reduced dramatically, showing no difference between the age groups. Johnson concludes, "Dietary fibre can really manipulate the inflammatory environment in the gut." The next step was looking at signs of inflammation in the brain. The researchers examined about 50 unique genes in microglia and found the high-fibre diet reduced the inflammatory profile in aged animals.

The researchers did not examine the effects of the diets on cognition and behaviour or the precise mechanisms in the gut-brain axis, but they plan to tackle that work in the future as part of a new, almost-$2 million grant from the National Institute on Aging, part of the National Institutes of Health. Although the study was conducted in mice, Johnson is comfortable extending his findings to humans, if only in a general sense. "What you eat matters. We know that older adults consume 40 percent less dietary fibre than is recommended. Not getting enough fibre could have negative consequences for things you don't even think about, such as connections to brain health and inflammation in general."


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Obesity: We inherit the dangerous fat from Dad -- and the good fat from Mom

September 6, 2018
Science Daily

A team of researchers, led by Professor Jan-Wilhelm Kornfeld from the Department of Biochemistry and Molecular Biology, University of Southern Denmark, Elena Schmidt from the Max Planck Institute for Metabolism Research, Cologne, Germany and Martin Bilban from the Medial University, Vienna, Austria, have made a ground-breaking discovery in obesity research.

The team has discovered a new function of the gene H19. This gene proves to have a unique protective effect against the development of overweight and consequently could affect the onset of overweight-associated disease such as diabetes, overweight and cardiovascular diseases. H19 belongs to the app. one percent of our genes, which we -- as opposed to the remaining 99 percent -- inherit exclusively from either our mother or father, the so-called monoallelic genes. As a result of extensive studies, the researchers have also discovered how genes derived from our father primarily lead to the development of white fat tissue, which most often are found on the stomach, thighs and backside, and which can lead to metabolic diseases.

Likewise, it appears that genes from our mother primarily lead to the development of brown fat tissue, which is characterized by having a protective effect against obesity. Professor Jan-Wilhelm Kornfeld and Martin Bilban are delighted with the research results. In their

"By using mouse models, we have identified that the gene H19 performs a form of gene control in brown fat cells. We have been able to demonstrate that an over-expression of the H19 gene in mice protects against obesity and insulin resistance. In addition, we have been able to detect similar patterns of gene control in obese people. We therefore believe that our results can be the first step towards developing ground-breaking new and improved treatments for obesity-related diseases," says Professor Jan-Wilhelm Kornfeld.


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Ways to maximize nutrition and growth for the smallest preemies

September 5, 2018 Science Daily

The tiniest of premature infants -- weighing just over two pounds at birth on average -- start out receiving nutrition intravenously.

Over the next several days or weeks, they are transitioned to enteral (or through the gut) feeds, often delivered through feeding tubes if the baby still cannot suck or swallow. During this transition, preemies are fed through a mixture of methods, but the total protein intake tends to drop, which interferes with growth. To help clinicians maximize nutrition and growth in these infants, researchers quantified the gains and losses of different nutrition delivery practices during the transition to enteral feeds. Their results were published in the Journal of Pediatrics.

"Growth and nutrition are essential for premature babies, since as they get bigger they generally require less intervention," says lead author Gustave Falciglia, MD, MSc, neonatologist at Ann & Robert H. Lurie Children's Hospital of Chicago and Assistant Professor of Neonatal-Perinatal Medicine at Northwestern University Feinberg School of Medicine. "Our study provides important information to help neonatologists assess the total nutritional effects of their combined orders as they gradually decrease intravenous nutrition and increase enteral feeds."

Currently, the electronic health record does not calculate the total nutrition babies receive from various nutritional delivery practices during the transition to full enteral feeds. Managing optimal nutrition during the transition is a complex process and the study suggests that an automated system is needed to help clinicians weigh the trade-offs in calorie and protein intake with different nutrition delivery practice decisions.

"Ultimately, we would like to develop an automated tool to provide immediate feedback on the calories and protein the baby is getting through multiple vehicles used to deliver nutrition during the transitional stages," says Dr. Falciglia. "This would substantially help clinicians optimize nutrition and growth in very low birth weight infants."

The study was a retrospective analysis of detailed nutritional and fluid data received by 115 very low birth weight infants over 4,643 days at Lurie Children's regional neonatal intensive care unit (NICU). The median gestational age was 28 weeks and median birth weight was 1,060 grams. Infants admitted within the first week of life and discharged after the first month of life were included. The study excluded infants with chromosomal abnormalities or congenital anomalies because of the uncertain influence these conditions may have had on metabolism and growth.

Changes in calories and protein intake were estimated during five transition phases from full intravenous nutrition to full enteral nutrition. In each phase, researchers determined the effects of nutrition delivery practices including intravenous nutrition, intravenous lipids, central line, feeding fortification, fluid restriction and excess non-nutritive fluid intake. Based on their findings, the authors recommend specific approaches to maximize calorie and protein intake during various transition phases.

Fish oil supplement in pregnancy is linked to increase in lean and bone mass by age 6 years

September 4, 2018 Science Daily

Fish oil supplement in the later stages of pregnancy is associated with a higher body mass index (BMI) in children in the first six years of life, which is explained by an increase in total lean and bone mass at 6 years of age, but with no increase in fat mass, suggest the findings of a large randomised controlled trial published by The BMJ today.


Image © iStock.com/Hope Connolly

Studies in animals have shown that supplementing the diet with fish oil during pregnancy affects adipogenesis (the development of fat cells). However, while trials in humans have shown that pregnant women with a higher intake of fish oil give birth to higher birth weight infants, the impact on children later in life has been unclear. So a team of researchers based in Denmark and the UK set out to examine the effect of taking fish oil supplements during pregnancy on the growth and body composition of children later in life.

The trial involved 736 pregnant women from the Copenhagen Prospective Studies on Asthma in Childhood study who were randomised to receive n-3 long-chain polyunsaturated fatty acids (LCPUFAs) (fish oil) or olive oil (control) daily from week 24 of pregnancy week until one week after birth. Height, weight, head and waist measurements were assessed 11 times from birth to age 6 years and adjusted for age and sex. These revealed a sustained higher BMI from 1 year to 6 years of age.

Body composition was assessed using dual-energy X-ray absorptiometry (DXA) scans at 3.5 and 6 years of age and demonstrated that the higher BMI was not the result of a higher fat percentage, but reflected a proportional increase in lean mass, bone mass, and fat mass, suggesting that the fish oil supplementation had a general growth stimulating effect.

At age 6, DXA scans showed children whose mothers had taken fish oil supplements while pregnant had a 395g higher total mass, 280.7g higher lean mass, 10.3g higher bone mineral content and 116.3g higher fat mass compared with children of mothers who took the control oil. The researchers conclude: "The body composition at age 6 years in children given fish oil supplementation was characterised by a proportional increase in lean, bone, and fat mass suggesting a general growth stimulating effect."

How a low-carb diet might impact gut health

Medical News Today 25 September 2018 By Ana Sandoiu

New research uses a "human gut simulator" to study the effects of two different diets on the composition of gut microbiota. Its findings illuminate the harms of having no carbs in the diet.

Recently, there has been a lot of debate over the role of carbohydrates in one's diet. On one hand, a diet low in carbs has been shown to stave off insulin resistance and metabolic syndrome. Low-carb, high-fat diets such as the keto diet — which more and more people are adopting to lose weight — have been suggested to have several benefits. These range from improving cardiovascular health to keeping the brain healthy.

On the other hand, recent studies have suggested that too few carbs in our diet may raise mortality risk, while other researchers have downright discouraged people from adopting low-carb diets, deeming them "unsafe." Most studies in the latter category are observational studies, but new research helps elucidate the effects of a diet low in carbs and high in fat on gut microbiota by using an artificial intestine.

Scientists led by Richard Agans, of the Department of Biochemistry and Molecular Biology at the Wright State University in Dayton, OH, conducted the new study. Its findings were recently published in the journal Applied and Environmental Microbiology.

The health benefits of eating carbs Agans and colleagues designed an artificial intestine, or human gut simulator, whose main purpose was to simulate the environment found inside the human colon. The researchers used fecal samples from donors to recreate this bacterial environment and added nutrients first from a balanced Western diet, and then from a no-carb, no-protein diet made exclusively of fats. Then, they applied a range of cutting-edge technologies to examine and measure the composition of metabolites resulting from changing the nutrients.

The study revealed that switching from a balanced diet to a high-fat, no-carb diet increased strains of bacteria that metabolize fatty acids. The switch also lowered bacteria such as Bacteroides, Clostridium, and Roseburia, which are responsible for degrading proteins and carbs. In turn, this reduced the production of short-chain fatty acids and antioxidants, which are chemical compounds that fight DNA damage and aging by countering the harmful effects of free radicals.

When gut bacteria metabolize carbs, say the researchers, they release short-chain fatty acids, which have positive health effects such as reducing inflammation and colon cancer risk. "The relative beneficial and harmful effects of the high-carb and high-fat diets are a subject of many studies and debates," says corresponding study author Dr. Oleg Paliy, an associate professor at

Wright State University's Boonshoft School of Medicine. However, "One aspect rarely considered in the above debate," point out the study authors, "is how macronutrient composition of a diet impacts the environment of the colon and the gut microbiota residing in that region."

"Intestinal microbes mediate many dietary effects on human health," adds Dr. Paliy. "There, most of these compounds are fermented by gut bacteria." "This happens," he notes, "because a significant proportion of dietary carbohydrates, proteins, and fats escapes digestion in the small intestine, and reaches the colon, a section of the gut housing a dense population of microbes."

The new study "showed that human gut microbiota can utilize dietary fatty acids to sustain growth." Changing to a fat-only diet, the authors explain, "led to a substantial decrease in the production of [short-chain fatty acids] and antioxidants in the colonic region of the gut, which might potentially have negative health consequences on the host."

Is carrageenan safe to eat?

Medical News Today 19 September 2018 By Amanda Barrell

Carrageenan is a common food additive extracted from red seaweed. Manufacturers often use it as a thickening agent. The United States Food and Drug Administration (FDA) have approved the additive for use, but concerns about its safety remain.

Some scientists believe that carrageenan can cause inflammation, digestive problems, such as bloating and irritable bowel disease (IBD), and even colon cancer. However, the validity of these claims is hotly debated because the only supporting evidence comes from studies in cells and animals.

In this article, we take a closer look at the risks and uses of carrageenan.

Is carrageenan bad for you?

Different forms of carrageenan have different uses and potential risks.

Food-grade carrageenan is extracted from red seaweed and processed with alkaline substances.

When carrageenan is processed with acid, it creates a substance called degraded carrageenan, or poligeenan, which carries significant health warnings.

Poligeenan is an inflammatory substance. Researchers often use it to test new anti-inflammatory drugs in the laboratory. Poligeenan is not approved as a food additive.

What does the research say?

Degraded carrageenan, or poligeenan, is not safe to eat. Research in animals indicates that it causes gut tumours and ulcers, and may even trigger colon cancer. Because of the possible danger, fewer studies have investigated the potential effects in humans. Findings like these have led the International Agency for Research in Cancer to list poligeenan as a possible human carcinogen. This means that the agency has reviewed the evidence that poligeenan can cause cancer in animals and concluded that it may have the same effect in humans.

Some scientists are concerned that food-grade carrageenan is also dangerous. This is because various studies, dating back to the 1960s, show that the substance may degrade and become toxic when it mixes with stomach acid. The medical community is unsure to what extent carrageenan degrades in the digestive system. This means that we do not know if any amount is toxic. It is important to note that no related studies have involved human participants.

Findings of a review from 2017 indicated that even non-degraded carrageenan can cause inflammation and bowel disorders, suggesting that this substance may contribute to ulcers and IBD. However, authors of a 2018 review concluded that there is not enough evidence to draw conclusions about the exact health effects of carrageenan. Anecdotal evidence suggests that eliminating carrageenan from the diet can provide relief from digestive problems, such as bloating and IBD. However, these reports are not the result of scientific research.

How is carrageenan used?

Carrageenan has a variety of uses. Though it has no flavour or nutritional value, it is a useful thickening agent and stabilizer.

Some manufacturers include it in products like chocolate milk, to stop the milk from separating.

It can also substitute for fat in non- or low-fat foods and dairy replacement products aimed at the vegan market.

Some manufacturers use carrageenan as a binder in processed deli meats. Others inject it into pre-cooked poultry to tenderize the meat and keep it juicy for longer.

Companies often use carrageenan as a vegan alternative to gelatin, in desserts, for example. It is also a common ingredient in canned pet food.


Image © iStock.com/nazimpressions

Non-food products, such as air freshener gels and toothpaste also frequently contain carrageenan.
The FDA requires manufacturers to state whether products contain carrageenan on labelling.

Possible dangers and side effects of carrageenan
There is some debate over whether the findings of animal- and cell-based studies can apply to people.
If they can, the possible side effects of consuming carrageenan include:
• inflammation
• bloating
• irritable bowel syndrome and IBD
• glucose intolerance
• colon cancer
• food allergies

Foods that contain carrageenan
Because carrageenan has a variety of uses, it is included in a wide range of products.
The following foods commonly contain carrageenan:
• Dairy: whipping cream, chocolate milk, ice cream, sour cream, cottage cheese, and children's squeezable yogurt products
• Dairy alternatives: soy milk, almond milk, hemp milk, coconut milk, and soy puddings and other desserts
• Meats: sliced turkey, prepared chicken, and deli meats
• Prepared foods: canned soups and broths, microwavable dinners, and frozen pizzas

Some nutritional or diet drinks contain carrageenan, as do some supplements, including chewable vitamins.
Because it can be used as a gelatin alternative, some manufacturers use carrageenan in jelly-based products, including vegan jelly desserts.

Alternatives to carrageenan
In the U.S., any products that contain carrageenan must list it as an ingredient. A person should be able to avoid carrageenan by checking labelling carefully.
Carrageenan's texture-enhancing qualities, for example, can be replicated using:
• locust bean gum
• gum arabic
• alginate
• guar gum
• xanthan gum
When a drink that tends to separate, such as chocolate milk, does not contain a stabilizer, a person may need to shake the bottle. This does not affect the quality or safety of the product.

Conclusion
There has long been concern and debate over the safety of consuming carrageenan. This food additive is produced by mixing a seaweed extract with alkaline substances. Scientists widely accept that degraded carrageenan, or poligeenan, can trigger cancer and other health issues. Poligeenan is made by mixing the same seaweed extract with acid. It is a powerful inflammatory agent used in laboratories.

Studies in animals indicate that some food-grade carrageenan can degrade, becoming poligeenan, when it is exposed to stomach acid. These studies have not shown conclusively whether the amount of degraded carrageenan is dangerous. However, because of the potential risk, no researchers have conducted studies in humans.

In the U.S., the FDA have approved carrageenan for use as a food additive.

Some people report that eliminating carrageenan from the diet has helped relieve symptoms of stomach discomfort, such as bloating and IBD. However, no scientific research supports these claims.

What are the benefits of protein powder?
Medical News Today 18 September 2018 By Jayne Leonard

Protein powder is a popular nutritional supplement. Protein is an essential macronutrient that helps build muscle, repair tissue, and make enzymes and hormones. Using protein powder may also aid weight loss and help people tone their muscles.

There are many different types of protein powder, including dairy-based and plant-based powders. In this article, we discuss some of the health benefits of protein powder and the different types available.

Health benefits of protein powder
Protein is one of the building blocks of bone, muscle, and skin. The body needs it to produce hormones, enzymes, and other chemicals. The possible health benefits of protein powders include the following:

Weight management
Eating protein-rich foods and taking supplements may help people feel fuller for longer. Feeling full tends to result in smaller portion sizes and less frequent snacking, which can help a person maintain a healthy weight or lose weight if necessary.
A 2017 review reported that supplementing with whey protein might reduce body weight and total fat mass in people who are overweight or obese. It may also reduce blood pressure, total cholesterol, and other risk factors for cardiovascular diseases.


Image © iStock.com/magnez2

Muscle growth
Protein is essential for muscle growth. Many athletes and gym enthusiasts consume protein shakes because they believe that these drinks will help them bulk up after strength training.
A 2018 analysis of 49 studies supports the use of protein supplementation for this purpose. The research suggests that protein supplements significantly improve muscle size and strength in healthy adults who perform resistance exercise training, such as lifting weights.
Protein supplementation was equally effective in men and women. However, the effectiveness may decrease with age, as older adults have higher protein requirements than younger people.
The researchers also noted that once protein exceeded 1.6 grams (g) per kilogram (kg) of body weight (or 0.73 g per pound (lb) of body weight), the participants did not experience any additional benefits.

Recovery after exercise
As well as contributing to muscle growth, protein can help repair damaged muscles and tissues. As a result, athletes may use protein powder to speed up recovery from muscle soreness after exercise.
Many studies report that taking protein supplements after exercise can aid recovery by reducing muscle damage and improving muscle performance and muscle protein synthesis.

Added nutrition
The recommended daily intake of protein for people aged 19 years and over is 46 g for women and 56 g for men.
People who find it challenging to meet these amounts, possibly including some vegans and vegetarians, may find that protein powder offers an easy solution to the problem.
Athletes, weight lifters, older adults, and people with a chronic illness may need to exceed the general protein intake recommendation. Research shows that athletes with an intense training regimen may benefit from having about twice the daily recommended intake of protein, ranging from 1.4 to 2.0 g per kg of body weight. This is equivalent to 111–159 g per day for a person who weighs 175 lb.

Types of protein powder
There are several different types of protein powder. Whey is the most popular protein supplement and the one that researchers have tended to focus on, but it is not the only one.
Common types of protein powder include:
• Whey: This water-soluble milk protein is popular among athletes. It is a complete protein, meaning that it contains all of the amino acids that the human body requires from food. The body absorbs whey protein quickly and easily.
• Casein: This type of protein is rich in glutamine, an amino acid that may speed up muscle recovery after exercise. Casein comes from dairy, making it unsuitable for vegans and people with milk allergies. The body digests this protein more slowly, so it may be best to take it at night.
• Soy: Soy protein is an excellent alternative to whey or casein for people who do not consume dairy. It also contains all the essential amino acids.
• Pea: Many plant-based protein powders contain pea protein, which is a high-quality alternative to soy- and dairy-based proteins. Pea protein is a good source of the amino acid arginine.
• Hemp: Hemp seeds are complete proteins that also contain essential fatty acids. This makes hemp an excellent choice for vegans or those with dairy or soy allergies.

Protein shakes vary in price and quality. The United States Food and Drug Administration (FDA) do not regulate protein powders. According to a 2018 study, many of the best-selling protein powders contain heavy metals, such as lead, cadmium, and arsenic. Therefore, people should always proceed with caution when buying protein powders and choose a product from a reputable supplier.

How to use protein powder
Before using protein powders, people should calculate their nutritional needs. Those who do not get enough protein from their diet could consider supplementing with protein powders. However, it is best to avoid consuming too much protein. Some powders contain up to 80 g per serving, which is too much for most people. A 2013 review found that long-term excessive consumption of protein may damage the kidneys and liver and affect the body's bone and calcium balance. Excessively high levels of protein in the diet can also result in a reduced intake of other beneficial foods, such as fiber-rich fruits, vegetables, and legumes that the body uses to feed and sustain gut bacteria.

The optimal timing of protein supplementation is unclear. Many people suggest taking it after workouts, but research findings are inconclusive due to studies producing conflicting results. For example, a 2018 study reported that taking protein supplements with meals is more effective for weight management and reducing fat mass than taking them between meals. In contrast, a 2014 study reported that a 30 g protein dose after exercise improves protein synthesis in those following a reduced-calorie diet.
People can mix flavoured protein powder with water according to the directions on the packaging. Alternatively, many people blend protein powder into milk or fruit and vegetable smoothies.

Takeaway
Protein powders can be a beneficial supplement for many people, especially for athletes, older adults, vegetarians, and vegans. They are a convenient source of complete

protein. Sometimes they also contain other nutrients. However, not everyone needs extra protein. People who eat a diet that is rich in meat, fish, dairy, and eggs and do not do intense weight training are unlikely to need to take protein supplements. People who wish to supplement their diet with protein powder should choose a high-quality product and speak to their doctor or a dietitian before using it.."

Eating fiber can delay brain aging

Medical News Today 17 September 2018
By Ana Sandoiu

Fiber is a key element of a healthful diet. New research breaks down the mechanism by


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which it can delay age-related brain inflammation.

If all the studies that urge people to consume a diet rich in fruits, vegetables, and whole grains for a healthy life haven't convinced you yet to add more broccoli to your plate, perhaps this latest research will. Eating fiber-rich foods — such as broccoli, nuts, oats, beans, and whole-grain bread — might help delay brain aging by triggering the production of a short-chain fatty acid that has anti-inflammatory properties. This is the main takeaway of a new study that was recently published in the journal Frontiers in Immunology. Rodney Johnson, a professor and the head of the Department of Animal Sciences at the University of Illinois at Urbana-Champaign, is the corresponding author of the study, and Stephanie M. Matt is the first author of the paper.

How fiber lowers inflammation
As Matt and colleagues explain in their study paper, microglia — a major type of immune cell in the brain — tend to become hyperactive and chronically inflamed with age. This inflammation of the microglia is one of the main causes of memory and cognitive decline in old age. Previous research has shown that a drug form of butyrate, which is a short-chain fatty acid that is produced in the colon when bacteria ferment fiber in the gut, can improve memory and reduce inflammation in mice. However, the precise mechanisms behind this weren't entirely understood. Also, previous research had not shown whether simply increasing the dietary content of fiber would achieve the same results as the drug.

So, Matt and colleagues fed young and aging mice diets high and low in fiber. Then, the scientists measured the mice's blood levels of butyrate and their levels of pro-inflammatory substances in their intestines. Prof. Johnson sums up these findings, saying, "The high-fiber diet elevated butyrate and other [short-chain fatty acids] in the blood both for young and old mice." "But," he goes on, "only the old mice showed intestinal inflammation on the low-fiber diet [...] It's interesting that young adults didn't have that inflammatory response on the same diet. It clearly highlights the vulnerability of being old."

Also, consuming a high-fiber diet reduced the intestinal inflammation in aging mice so much that it was indistinguishable from that of young mice. "Dietary fiber can really manipulate the inflammatory environment in the gut," says Prof. Johnson. What about the brain, however?

Why fiber is good for your brain
A genetic analysis of inflammatory markers conducted by the scientists found that a high-fiber diet reduced inflammation in the brain's microglia. The researchers suspect that this was achieved by diminishing the production of a pro-inflammatory chemical known as interleukin-1β, which some studies have linked with Alzheimer's.

Study co-author Jeff Woods, a professor in the Department of Kinesiology and Community Health at the University of Illinois at Urbana-Champaign, comments on the findings. "We know that diet has a major influence on the composition and function of microbes in the gut and that diets high in fiber benefit good microbes," he points out, "while diets high in fat and protein can have a negative influence on microbial composition and function." Altering gut microbes, explains Prof. Woods, "is one way in which [diet] affects disease."

Prof. Johnson explains that the findings are relevant to humans, saying, "People are not likely to consume sodium butyrate directly, due to its noxious odor," he says, but, "A practical way to get elevated butyrate is to consume a diet high in soluble fiber." "What you eat matters. We know that older adults consume 40 percent less dietary fiber than is recommended. Not getting enough fiber could have negative consequences for things you don't even think about, such as connections to brain health and inflammation in general." Prof. Rodney Johnson


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Health benefits of hemp seeds

Medical News Today 11 September 2018 By Cathleen Crichton-Stuart

Many people consider hemp seeds to be a superfood. The seeds have a rich nutritional profile and provide a range of health benefits.

Although hemp seeds come from the Cannabis sativa plant, they do not produce a mind-altering effect. These small, brown seeds are rich in protein, fiber, and healthful fatty acids, including omega-3s and omega-6s. They have antioxidant effects and may reduce symptoms of numerous ailments, improving the health of the heart, skin, and joints. In this article, we look at the various benefits of hemp seeds and provide tips for adding them to the diet.

Nutritional benefits of hemp seeds

These seeds are full of nutritious compounds, including:

1. Protein

Hemp seeds contain almost as much protein as soybeans. In every 30 grams (g) of seeds, or about a tablespoon, there are 9.46 g of protein. These seeds are a complete source of protein, meaning that they provide all nine essential amino acids. Amino acids are the building blocks for all proteins. The body cannot produce nine of these acids, so a person must absorb them through the diet. Relatively few plant-based foods are complete sources of protein, making hemp seeds a valuable addition to a vegetarian or vegan diet. Hemp seeds are especially rich in an amino acid called arginine, which has benefits for heart health.

2. Unsaturated fats

The health benefits of polyunsaturated fats, especially omega-3 fatty acids, are becoming increasingly well known. Hemp seeds are a great source of essential fatty acids, such as alpha-linolenic acid (ALA), which is an omega-3. The body cannot produce essential fatty acids, and the body must absorb them from the diet. They are crucial for long-term health. The ratio of omega-3s to omega-6s is also important. In general, people tend to eat too many omega-6s and too few omega-3s, but adding hemp seeds to the diet may help to promote a balance. According to results of a 2015 animal study, incorporating hemp seeds and hemp seed oil to hens' diet led to eggs with increased levels of omega-3s in the yolks and a more healthful omega-3 to omega-6 ratio. Also, hemp seeds are low in saturated fats and contain no trans fats.

3. Fiber

Much of the fiber in a hemp seed lies in its outer hull, or shell. If possible, purchase hemp seeds with the hulls intact. However, even without the shells, hemp seeds are a god source pf fiber, with three tablespoons containing approximately 1.2 g of fiber. Consuming enough fiber every day can:

- reduce the appetite
- help with weight management
- work to stabilize blood sugar levels
- promote the health of the gut

4. Minerals and vitamins

Hemp seeds contain an impressive array of vitamins and minerals and are especially rich in:

- vitamin E
- magnesium
- phosphorous
- potassium

They are also a good source of iron, zinc, and B vitamins, including:

- niacin
- riboflavin
- thiamine
- vitamin B-6
- folate

Health benefits of hemp seeds

Alongside the nutritional benefits, some research suggests that hemp seeds have a wide range of positive health effects. They may:

5. Protect the brain

A study published in the journal Food Chemistry found that hemp seed extract has antioxidant effects in lab tests. These effects may result from the seeds' cannabidiol (CBD) content.

Results of a review from 2018 suggest that CBD and other compounds in the seeds may have neuro-protective, anti-inflammatory, effects and may also help to regulate the immune system.

The review suggests that, because of these potential properties, CBD may help with neurological conditions, including:

- Parkinson's disease
- Alzheimer's disease
- multiple sclerosis
- neuropathic pain
- childhood seizure disorders

6. Boost heart health

The medical community believes that omega-3 fatty acids improve the health of the heart and reduce the risk of issues such as arrhythmias and heart disease. Hemp seeds contain high levels of omega-3s and a healthful ratio of omega-3 to omega-6 fatty acids. The seeds also contain high levels of arginine, an amino acid that turns into nitric oxide. Nitric oxide is essential for artery and vein dilation, and it helps keep blood vessel walls smooth and elastic. Lowering blood pressure, eating a healthful diet, and participating in varied forms of exercise may help to decrease the risk of heart failure.

7. Reduce inflammation

The amount of omega-3s in hemp seeds and the seeds' healthful omega-3 to omega-6 ratio can together help to reduce inflammation. In addition, hemp seeds are a rich source of gamma linolenic acid (GLA), a polyunsaturated fatty acid which may also have anti-inflammatory effects. Some studies on animals suggest that GLA can act as a potent anti-inflammatory. However, recent studies in humans suggest that the acid is not always effective. A review in The European Journal of Pharmacology states that humans process GLA in a very complicated way, which may explain why the studies in humans produce more varied results than those on animals. When looking at these studies, it is important to note that researchers usually use high concentrations of hemp seed extracts and that eating the seeds may produce less dramatic effects.

Reducing inflammation may help manage the symptoms of chronic diseases, such as:

- metabolic syndrome
- type 2 diabetes
- arthritis
- heart disease
- non-alcohol-related fatty liver disease

8. Improve skin conditions

Atopic dermatitis (AD) and acne can both result from chronic inflammation. The anti-inflammatory compounds in hemp seeds may help. Among other possible dietary causes, acne may be linked to a deficiency in omega-3s. The high omega-3 content in hemp seeds may help to manage and reduce acne symptoms. A 2018 review explored the effects of dietary changes on skin diseases. While the authors found evidence that eating more omega-3s may improve symptoms of acne, determining the extent of the effects will require more research. The authors also note that prebiotics and plant fibers may help to manage symptoms of AD. Hemp seeds are a rich source of plant fiber.

9. Relieve rheumatoid arthritis

Rheumatoid arthritis is an autoimmune condition. It causes the immune system to attack its own tissues, which leads to inflammation in the joints. In 2014, research conducted in human cells suggested that hemp seed oil could have anti-rheumatic effects. However, a 2018 review found a lack of conclusive evidence to suggest that cannabinoids could effectively treat rheumatic diseases. The authors noted that more research is needed.

Nutritional profile of hemp seeds

Hemp seeds contain plenty of protein, healthful fatty acids, and fiber. According to the United States Department of Agriculture (USDA), 3 tablespoons of hemp seeds contain 116 calories and the following nutrients:

Protein	9.47 g
Carbohydrates	2.60 g
Fat	1.20 g
Total fatty acids	14.62 g
Monounsaturated fatty acids	1.62 g
Polyunsaturated fat	11.43 g
Saturated fatty acids	1.38 g

Hemp seeds are also a healthful source of vitamin E and minerals, such as calcium, iron, magnesium, potassium, and zinc.

How to add hemp seeds to the diet

People can add hemp seeds to smoothies and cereal. When considering the results of studies, it is important to note that researchers often use hemp seed extract, rather than whole hemp seeds. People can purchase shelled, ground, or split seeds. To remove the seeds' hard outer shells at home, a person can use a mortar and pestle or a food processor.

Whole seeds act as a bulking agent, and they also add fiber to the diet, which can aid digestion.

Try incorporating hemp seeds into the diet by:

- sprinkling whole or ground seeds on cereal or yogurt
- adding the seeds to smoothies
- baking with hemp seeds and others rich in omega-3s
- making hemp milk at home using whole seeds
- sprinkling hemp seeds, along with other seeds or nuts, on a salad
- People can find hemp seeds in some supermarkets, health food stores, and online.

Online stores also offer other hemp products, such as hemp milk, which may be fortified with extra nutrients, and hemp protein powder, which is a plant-based alternative to whey protein powder.

Risks

Although hemp seeds come from the cannabis plant, they ideally contain no tetrahydrocannabinol (THC), which is the active ingredient in cannabis. Hemp seeds will not produce a mind-altering effect. However, athletes and others who undergo drug testing should be aware that consuming hemp products can, in some cases, lead to failed urine tests. The level of THC in any hemp-based product depends on the suppliers and the manufacturing process. In Canada, the production of hemp seeds is tightly regulated to prevent cross contamination of THC from the cannabis plant. A legal principle in the U.S. prohibits people from growing hemp seeds with THC concentrations higher than 0.3 percent. The U.S. government also strictly regulates the importation of hemp seeds and hemp-based products.

Takeaway

Hemp seeds have a rich nutrition profile. They contain high levels of antioxidants, fatty acids, minerals, and vitamins. The shells add fiber to the diet, and grinding the seeds helps the body to absorb more of the other nutrients. Some research has suggested links between hemp seeds and health benefits, but these studies tend to use extracts with high concentrations. While there are potential health benefits to consuming hemp seeds, avoid eating excessive amounts. There is evidence that some seeds contain levels of THC that exceed the legal limit. The most healthful choice is to eat a varied diet that contains a wide range of nutrients.

Natural ways to improve insulin sensitivity

Medical News Today Mon 10 September 2018 By Charlotte Lillis

Insulin sensitivity refers to how sensitive the body's cells are in response to insulin. Doctors generally consider a high insulin sensitivity to be healthy. Some lifestyle and dietary changes may help improve this sensitivity.

Insulin is a hormone that helps control the amount of sugar, or glucose, in the blood. The body's cells respond to insulin by absorbing sugar from the blood. Low insulin sensitivity is known as insulin resistance. This can cause blood sugar levels to become too high and may lead to type 2 diabetes. Insulin sensitivity varies between people and can change according to various lifestyle and dietary factors. Improving insulin sensitivity may benefit people who have or are at risk of type 2 diabetes. In this article, we look at lifestyle and dietary factors that may help a person improve their insulin sensitivity naturally.

Lifestyle

People who wish to increase their insulin sensitivity can try making the following lifestyle changes:

Getting more exercise

Getting more exercise may be one way to improve insulin sensitivity. In a 2012 study, 55 healthy adults participated in a 16-week exercise program. The researchers found an association between increased physical activity levels and improved insulin sensitivity. This result was dose-dependent, meaning that the more the participants exercised, the more their insulin sensitivity improved.

Combining different exercises

The findings of a 2013 review suggest that certain types of exercise may increase insulin sensitivity more than others. The authors found that a combination of aerobic exercise and strength training was particularly effective for people both with and without diabetes. Based on their findings, the authors recommended that:

- People without diabetes should do at least 30 minutes of exercise five times a week. This exercise should include high-intensity aerobic exercise three times a week and strength training in all major muscle groups twice a week.
- People with type 2 diabetes should do at least 30 minutes of exercise five times a week. They should perform long-duration, moderate-intensity aerobic exercise three times a week and high-repetition resistance training in all major muscle groups twice a week.
- People with type 2 diabetes and limited mobility should do as much exercise as they can manage. They should aim to include low-intensity aerobic exercise combined with low-intensity resistance training in all major muscle groups three times a week.

Getting more sleep

Getting more sleep may also improve a person's insulin sensitivity. In a 2015 study, 16 healthy people who were not sleeping for long enough extended their sleep by 1 hour per day for 6 weeks. This extra sleep led to increased insulin sensitivity.

Diet

Some research suggests that making certain dietary changes could increase insulin sensitivity. These changes include:

Fewer carbohydrates, more unsaturated fats

Recent research suggests that replacing carbohydrates with unsaturated fats may improve insulin sensitivity in some people. A 2012 study investigated the effects of different diets on insulin sensitivity in adults with high blood pressure, which is a risk factor for type 2 diabetes.

The researchers concluded that eating a diet low in carbohydrates and high in unsaturated fats for 6 weeks may improve insulin sensitivity. The study also suggested that this diet was more effective at improving insulin sensitivity than a diet high in carbohydrates or a diet that replaces some carbohydrates with proteins. A 2016 systematic review of 102 studies concluded that replacing carbohydrate and saturated fat with polyunsaturated fat may improve the body's blood sugar regulation.


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More soluble fiber

Soluble fiber is a type of dietary fiber that comes from plants. Although this fiber is a type of carbohydrate, the body cannot break it down properly.

As a result, it does not contribute to spikes in blood glucose levels. Soluble fiber also delays gastric emptying, which is the time it takes for a meal to leave the stomach and enter the small intestine. A small 2014 study suggests that this delay may help lower blood glucose levels after meals in people with type 2 diabetes. Another study suggests that eating more soluble fiber may help reduce insulin resistance in healthy women.

Intermittent fasting

Intermittent fasting is a type of diet that focuses on the timing of eating rather than the specific foods in the diet. It may improve insulin sensitivity and reduce the risk of type 2 diabetes for certain people. A 2014 review investigated the effects of two types of intermittent fasting in overweight and obese adults:

• Restricting calorie intake for 1–3 days per week and eating freely on the remaining days.
• Alternating between fast days and feed days. People reduce their regular calorie intake by 75 percent on fast days and do not restrict their diet on feed days.

As with a daily calorie-restricted diet, the researchers found that both types of intermittent fasting reduced insulin resistance. However, this type of eating had no meaningful effect on blood glucose levels. They concluded that more research is necessary.

Dietary supplements

In addition to changing the foods in their diet, people looking to increase their insulin sensitivity may benefit from taking some dietary supplements. According to research, the following supplements could reduce insulin resistance:

Probiotics and omega-3 fatty acids

Taking probiotics or omega-3 fatty acid supplements may improve insulin sensitivity in overweight people. A 2014 clinical trial investigated the effects of both omega-3 fatty acids and probiotics on insulin sensitivity in 60 adults who were overweight but otherwise healthy. The researchers reported that taking either a probiotic or omega-3 supplement for 6 weeks led to significant improvements in insulin sensitivity compared to a placebo. The increase in insulin sensitivity was greater still in people who took both supplements together.

Magnesium

Magnesium supplements may also be beneficial for people wanting to improve their insulin sensitivity. A 2016 systematic review found that taking magnesium supplements for more than 4 months significantly improved insulin resistance in people with and without diabetes.

Resveratrol

Resveratrol is a natural compound that occurs in the skin of red grapes. It is also available as a dietary supplement. A 2014 meta-analysis of 11 studies found that taking resveratrol supplements significantly improved glucose control and insulin sensitivity in people with diabetes. However, the researchers did not observe the same effects in people without diabetes and concluded that there is a need for more research on the effects of resveratrol supplementation in humans.

Takeaway

Low insulin sensitivity is a risk factor for developing type 2 diabetes. Exercising well, having enough sleep, and eating a healthful diet high in unsaturated fats and soluble fiber may help improve insulin sensitivity in people with and without diabetes.

Certain dietary supplements may also be beneficial. Many of these supplements are available to purchase online:

• probiotic supplements.
• omega-3 supplements.
• magnesium supplements.
• resveratrol supplements.


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Probiotics: Does the evidence match the hype?

Medical News Today 6 September 2018 By Tim Newman

Two new studies investigating probiotics conclude that they do not benefit all people; in fact, they might even have negative consequences in some cases.

Probiotics are available in many products, from yogurt to pickles. The live organisms contained within promise to promote a healthy gastrointestinal tract. Advertised as safe and natural, probiotics have taken the market by storm. They claim to boost our gut flora and enhance our well-being, all in one delicious mouthful. However, as the latest research demonstrates, in human biology, things are rarely so straightforward. To date, evidence to back up many of the health claims associated with probiotics is lacking. For this reason, researchers from the Weizmann Institute and the Tel Aviv Medical Center, both in Israel, designed two of the most comprehensive investigations into probiotics to date. Their findings are now published in the journal Cell.

Senior author Eran Elinav explains why the team was interested in tackling this subject, saying, "People have thrown a lot of support to probiotics, even though the literature underlying our understanding of them is very controversial." "[W]e wanted to determine," he continues, "whether probiotics, such as the

ones you buy in the supermarket, do colonize the gastrointestinal tract like they're supposed to, and then whether these probiotics are having any impact on the human host."

A new approach
Most previous studies investigating probiotics assessed the species of bacteria in participants' guts by analyzing stool samples, but this type of proxy measure is not ideal. To improve upon this method, in the scientists' first study, they measured the gut bacteria directly, using endoscopies and colonoscopies. In all, 25 people were sampled, but only 15 progressed to the next stage.

The team split them into two groups: one took generic probiotics, while the other took a placebo. Shortly after, their gut bacteria were assessed again, and then, finally, they were analysed for a third time, 2 months after the intervention. They found that some individuals simply expelled the probiotics; the team referred to them as resisters. Conversely, some people's guts welcomed the new microbes, and they successfully colonized their gut; they were called persisters.

The researchers also revealed that by analysing an individual's original microbiome and gut gene expression, they could correctly predict who would be a persister and who would be a resister. Next, they compared stool analysis with direct sampling and found that there was only a partial correlation. Stool samples, it seems, are not necessarily a reliable proxy to assess gut flora. "Although all of our probiotic-consuming volunteers showed probiotics in their stool," says study co-author Eran Segal, a computational biologist, "only some of them showed them in their gut, which is where they need to be." "If some people resist and only some people permit them," he goes on to explain, "the benefits of the standard probiotics we all take can't be as universal as we once thought. These results highlight the role of the gut microbiome in driving very specific clinical differences between people."

Probiotics and antibiotic recovery
In the second study, the team set out to answer a different question. After a course of antibiotics, which clears out an individual's microbiome, patients are often advised to take probiotics. The researchers wanted to understand whether this truly is a good course of action.
To investigate, 21 participants took a course of antibiotics before being split into three groups:
• a control group in which members' microbiomes were left to recover without any intervention
• a group in which members took the same probiotics as were used in the first experiment
• a group in which members had their original microbiomes reinstated
The researchers achieved this by treating those participants with an autologous fecal microbiome transplant (aFMT) based on their own bacteria collected before they had taken antibiotics.

Those who took the standard probiotics saw a rapid recolonization. However, the probiotics' swift takeover prevented the participants' normal bacteria from repopulating, and the gut flora did not return to normal for months afterward. The aFMT group, on the other hand, saw a return to normality in just a matter of days. "Contrary to the current dogma that probiotics are harmless and benefit everyone, these results reveal a new potential adverse side effect of probiotic use with antibiotics that might even bring long-term consequences." Eran Elinav. As Elinav adds, "In contrast, replenishing the gut with one's own microbes is a personalized mother-nature-designed treatment that led to a full reversal of the antibiotics' effects."

In some ways, the results are not surprising; the microbiome is a very complex web of interactions, which is highly variable between individuals. To think that we could successfully and beneficially modify it with such a simple intervention was perhaps far-fetched. As Elinav says, their findings suggest "that probiotics should not be universally given as a 'one-size-fits-all' supplement. Instead, they could be tailored to the needs of each individual."

Phytonutrient supplement shown to help prevent exercise-related muscle damage

25 Sep 2018 Nutrition Insight

Consuming a supplement rich in carotenoids can help reduce muscle damage associated with exercise, specifically running, a clinical study funded by wellness company Lycored has shown.

According to the researchers involved in the study, these initial results open the door for additional studies to explore further the role of carotenoids and tomato phytonutrients in complementing an active lifestyle and allowing people to optimize the benefits of exercise. The results of the study have been published in the peer-reviewed scientific periodical, International Journal of Sports Nutrition and Exercise Metabolism.

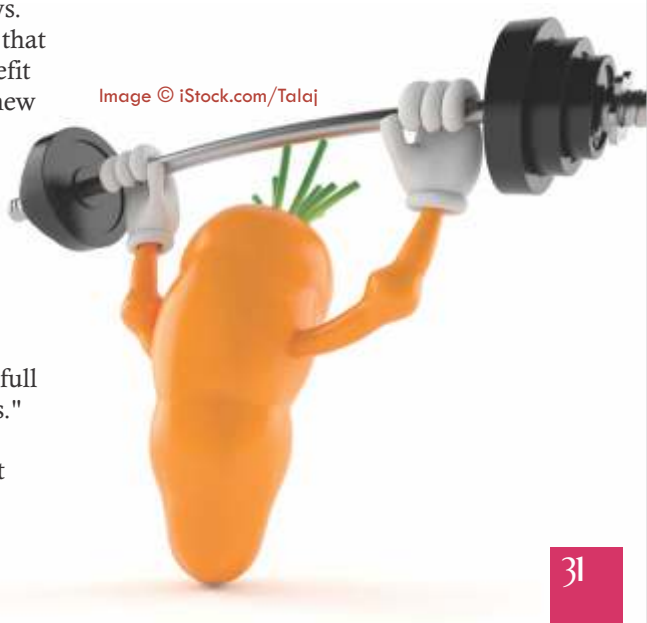
Image © iStock.com/Talaj

The clinical study investigated the effects of a tomato-based supplement that mimics the natural composition of the entire tomato by combining the oil and water-soluble fractions of the tomato. The supplement used in the study was rich in carotenoids such as lycopene, phytoene and phytofluene (T-LPP) as well as other ingredients, and is rounded by the presence of Rosemary extract and folic acid.

According to the researchers at Appalachian State University's Human Performance Lab in North Carolina, who conducted the study, the findings highlight how consuming a T-LPP supplement results in a significant increase in the plasma levels of the carotenoids contained within the supplement, and revealed less post-exercise increase in the acute muscle damage biomarker, serum myoglobin, than in the placebo group.

The concept was tested in a double-blind, randomized, placebo-controlled crossover study and involved 20 male and female runners (ages 22-45 years) who regularly compete in long-distance road races and were capable of running for two hours on treadmills at around 65-70 percent of their maximum velocity.

The study was conducted over a 10-week period that included two four-week supplementation periods, a two-week washout period (after which participants crossed over to the opposite treatment, and repeated all procedures), two exercise sessions and 12 blood samples.

Measurements of participants' blood samples and delayed-onset of muscle soreness (DOMS) ratings were taken pre- and post-four-weeks of supplementation, immediately following the two-hour run, and then again at one-hour, 24-hours and 48-hours post-run. Post-exercise serum myoglobin was found to be lower in participants who ingested the T-LPP supplement, as compared to the placebo group. Myoglobin is an iron- and oxygen-binding protein found in muscle tissue that is translocated to the blood compartment following acute muscle injury from intensive exercise; thus considered a sensitive marker for muscle injury.

Results from this study indicated that four-weeks of ingesting the T-LPP supplement containing lycopene, phytoene and phytofluene increased plasma carotenoid levels by 73 percent and diminished rises in the acute muscle damage biomarker, serum myoglobin, during recovery following a two-hour running bout that included downhill running.

"Previous animal and human data suggest that carotenoids and tomato phytonutrients may be useful in attenuating the oxidative stress and inflammation induced by prolonged and intensive exercise, however evidence is limited," says Dr. Karin Hermoni, Head of Science and Nutrition at Lycored. "With this study, we sought to extend on previous knowledge in several ways, including the utilization of a unique composition that combines among other ingredients, both the oil and the water-soluble fractions of the tomato. In this study, we chose an exercise challenge bout that is known to induce physiological stress in study participants and directly evaluated the protective effect of the supplement on muscle damage biomarker."

"Lycored's philosophy is all about promoting overall wellness, and sports nutrition is an increasingly important part of that picture. Health-conscious consumers – from athletes to casual exercisers are demonstrating growing understanding of the role of nutrition in complementing physical activity. It's that mainstreaming process that is causing the sports nutrition category to grow, and yes, we anticipate further growth in coming years," Zev Ziegler, Head of Marketing (Health) at Lycored tells NutritionInsight.

"We're constantly discovering more about the many health benefits of carotenoids, and this research demonstrates that they can ease the toll of physical activity takes by aiding muscle recovery. However, their benefits for physically active consumers don't end there. For example, how we cope with the sun is vital for anyone who is active outdoors and Lycoderm, our proprietary carotenoid blend helps protect the skin from harmful UV rays, and is water- and sweat-proof," Zeigler concludes.

Grabbing the opportunity: Snacking NPD undergoes health transformation

24 Sep 2018 Nutrition Insight

Consumers are increasingly seeking food options that are suitable for on the go consumption, as well as being nutritious.

Traditional fast-food snacks may fall short as healthful demands prevail, spurring ample NPD and innovation in an array of market areas. Nutrition on the go is becoming more achievable as healthier foods package themselves in on the go friendly formats, as well as established snacking options undergoing healthy transformations.

A survey by Welch's Global Ingredients group's found that 92 percent of Millennials reach for a snack instead of having breakfast,

lunch, or dinner at least once a week. As for why Millennials tend to engage in this eating habit, the survey found that 39 percent of respondents are too busy to sit down and eat a meal.

On average, one in four adults and one in five children eat meals out at least once a week, Helena Gibson-Moore, Nutrition Scientist at the British Nutrition Foundation tells NutritionInsight. This behavior is having an impact of nutritional intake: "It is estimated from survey data that around a quarter of adults' calories come from food eaten outside the home. Compared with meals prepared and eaten at home, those eaten outside of home tend to have higher levels of fat, saturated fat, added sugars, salt and lower levels of fruit and vegetables and vitamins and minerals," she explains.

"This increase in meals and snacks eaten outside of the home, particularly the easy availability and low cost of some of the higher fat, salt and sugars choices, has been shown as an important factor contributing to rising levels of overweight and obesity," she adds.

Megan Rossi, Registered Dietician and Research Fellow at Kings College London, Department of Nutritional Sciences echoes the sentiment that busier lifestyles can have a damaging effect on health: "Increased additive intake, decreased whole fresh food and decreased plant-based diversity. All of these things can occur when people eat on the move, and they all can have potential negative impacts on gut microbiota and health," she tells NutritionInsight.

In light of the changing face of societal eating habits, Public Health England (PHE), earlier this year launched a "Nutrition on the Go" campaign, in an effort to increase public perception of caloric intake, movement and making the right choice – especially while on the move. The campaign features images that emphasize the necessity of healthier choices, as many easy to grab options are calorie laden and lack key nutrients.

The campaign provides adults with a simple tip to help them make healthier choices while out and about – aim for 400-600-600. In other words, aim for 400 calories at breakfast, 600 at lunch and 600 at dinner, plus a couple of healthier snacks and drinks in-between. PHE has encouraged large food companies such as Greggs, McDonald's, Starbucks and Subway offer meals at 400 and 600 calories to aid shoppers in their quest for health.

Industry NPD responds to the call for healthier options

Although many foods suitable for consumption on the go feature high levels of calories and saturated fats and sugars, Innova Market Insights data notes the nutritional content of snack foods is changing in terms of protein content, fiber, vitamins and minerals, mirroring consumer demand for healthier options. The ongoing strength of the high protein trend, which is about satiation, is also illustrative of this shift.

The market researcher highlights that there was a 25 percent increase in fruit and vegetables marketed with a "snack" claim from 2012 to 2016. This increase was potentially in response to consumer calls to re-package healthy foods in snacking formats. We see examples of healthy snacks being packaged in pouches with nozzles, tubs with dips such as hummus separate on top and resealable packs.

One category to illustrate the diversification of snacking is the meat snacks category, which has profoundly benefited from the high protein trend. Stryve Biltong, a gourmet beef biltong company based in Texas, offers a high-protein, high-quality, cured and sliced beef, chicken and turkey bites. Biltong touts its product as a clean ingredient and paleo friendly alternative to traditional beef jerky that is high in protein with little to no carbohydrates, sugar, or nitrates/additives. This is a clear example of a typical snack undergoing a healthy transformation.

The company has recently secured a US$10 million investment from Meaningful Partners to accelerate manufacturing capacity and brand growth. Speaking on this topic, Jake Capps, Founder of Meaningful Partners says, "We are excited to have the opportunity to partner with the outstanding team at Stryve Biltong. They have a differentiated and phenomenal tasting product that is truly good for you in a fast-growing snack category. We have great confidence that the team will continue to grow Stryve to become a leading meat snack company offering specialty products, including biltong, to grocery, mass, club and convenience stores nationwide who are seeking a healthy snack alternative with a clean label and incredible taste."

"For our sliced biltong, our pouches are slightly smaller than other meat snacks on the market with the intent to make it easier to pack in a bag or take on the go. They're also resealable so you can enjoy at your convenience and always have a fresh bite," Paige Brown, Director of Marketing at Stryve Biltong tells NutritionInsight.


Image © iStock.com/PeopleImages

On the other side to the meat spectrum, Elmhurst has launched a plant-based protein drink packaged in a SIG carton, optimized for consumption on the go. The shake refers to itself as "The Cleanest Protein Shake on the Planet," tapping into the vegan trend and touting free from artificial ingredient status.

The new pack from Elmhurst, in collaboration with SIG, also features a scannable code which allows consumers to explore hidden content. The augmented reality (AR) content delivers details that hope to emphasize that the beverage is vegan. Along the AR journey, there will be information about the sustainability of SIG cartons as well as an opportunity for the consumer to take a picture with a personalized face filter to share on social media. This connected packaging aspect also taps into other overarching market trends, such as digitalization, increased concern over sustainability and connectivity.

Similarly tapping into the need for convenient plant-based nutrition is Revolicious: clean label, plant-based smoothie bowls with a packaging system optimized for grab-and-go use with a separate body and lid for toppings. Such a product fits in clearly with consumers trends, but is an innovative and fresh approach to snacking.

Revolicious founder, Jessica Barac, tells NutritionInsight that the increasingly busy lives of consumers has left them looking for healthy and convenient foods. "We have created the first product of its kind globally: Grab & go Smoothie Bowls with a 30-day shelf life. We noticed a real gap in the market for breakfast on the go that is nutritious and satiating."
What goes into the product is also extremely important, Barac continues, as "seven out of ten people now read nutritional nutrition labels and want to recognize the ingredients that are going into the food they eat. The market is very discerning and looking for clean label, convenient, delicious and healthy snacks that give them sustained energy. We are also seeing a huge number of people identifying themselves as vegan, vegetarian and flexitarian – the market is responding with huge amounts of NPD to cater to these groups."

Indeed, in terms of a healthier reformulation in NPD, until November 2017, four percent of snack launches tracked globally featured a low fat claim and six percent of total snacks carried a no trans fats claim, as reported by Innova Market Insights. At the same time, the percentage share of sugar claims (low sugar/no added sugar/ sugar-free) in new snack launches grew from two percent in 2012 to almost four percent.
The market for on the go nutrition is set to expand, with innovative startups, as well as major players, engaging in innovative NPD. It is clear that snacks undergoing healthy transformations – such as Stryve Biltong's jerky – will continue to join the increasing number healthful foods repackaging themselves and innovating in order to suit on the go formats.
By Laxmi Haigh

A diet consisting of foods with low nutritional quality ratings linked to cancer risk in European study

19 Sep 2018 Nutrition Insight

The consumption of foods with relatively low nutritional quality has been linked to an increased risk of developing cancer, according to a study published this week in PLOS Medicine.


Image © iStock.com/Mike_Kiev

The researchers used the British Food Standards Agency nutrient profiling system (FSAm-NPS) to reach their conclusions. The study was conducted by Mélanie Deschasaux of the French National Institute for Health and Medical Research, France and colleagues, in association with the WHO-IARC, suggests broad potential for the use of FSAm-NPS-based package labeling (e.g. Nutri-Score) to promote healthy food choices in European settings.

Making healthier food choices is a key challenge for the prevention of cancer and other chronic diseases. To help consumers, European authorities are considering implementing a unique nutrition label as a system to reflect the nutritional quality of food products, among which the five-color Nutri-Score derived from the FSAm-NPS, used in France and recently endorsed by Belgian authorities.

How the consumption of foods with high/low FSAm-NPS scores relates to cancer risk has been studied in national and regional cohorts but has not been characterized in diverse European populations. In their study, Deschasaux and colleagues analyzed food intake data from 471,495 adults from the European Prospective Investigation into Cancer and Nutrition (EPIC, 1992-2014, median follow-up: 15.3 y), among whom there were 49,794 incident cancer cases (main locations: breast, n = 12,063; prostate, n = 6,745; colon-rectum, n = 5,806).

The researchers assigned each participant's diet a British Food Standards Agency nutrient profiling system (FSAm-NPS) Dietary Index (DI), and computed multi-adjusted Cox proportional hazards models to describe any associations between the FSAm-NPS DI and cancer risks. Absolute cancer rates in those with high and low (quintiles 5 and 1) FSAm-NPS DI were 81.4 and 69.5 cases/10,000 person-

The researchers found that a higher FSAm-NPS DI, reflecting a lower nutritional quality of food consumed, was associated with a higher risk of total cancer (HR for Q5 versus Q1: 1.07; 95 percent CI: 1.03-1.10, P-trend < 0.001).

Higher FSAm-NPS DI were specifically associated with higher risks of cancers of the colon-rectum, upper aerodigestive tract and stomach, lung for men, and liver and postmenopausal breast for women (all P < 0.05). The main study limitation was the use of self-reported dietary data, collected once at baseline. "This supports the relevance of the FSAm-NPS as underlying nutrient profiling system for front-of-pack nutrition labels, as well as for other public health nutritional measures," the authors state.

Acacia gum shows strong sugar reduction and prebiotic potential, says Alland & Robert

18 Sep 2018 Nutrition Insight

Due to various natural properties, acacia gum is a natural emulsifier that is particularly efficient in the stabilization of oil in water emulsions commonly used in the manufacturing of soft drinks.

However, the ingredient is also widely used in dietary products due to its fiber-enriching capacity and has scientifically-proven prebiotic effects. NutritionInsight spoke with Dr. Isabelle Jaouen, Head of R&D at Alland & Robert, about the market opportunities for this ingredient at a time when digestive health, sugar reduction and plant-based offerings are high on the agenda.

Sugar content is for many health-aware consumers an easily understood aspect of their food and beverage consumption, in part causing the ongoing trend of sugar reduction to dominate the R&D agendas of many manufacturers. Due to growing consumer demands for "healthy" products that still taste and look appealing, as well as increasing government regulations and taxes on sugar content, suppliers must face the delicate balancing act of ditching sugar without losing its functional properties.

According to Jaouen, this is where ingredients such as acacia gum can play a crucial role. "Because acacia gum can answer texturing needs as a bulking agent and generate [a pleasant] mouthfeel in beverages, for instance, we see some interesting opportunities here," Dr. Jaouen says. "Particularly in soft drinks based on essential oils, orange, cola and citrus, as well as the growing market of flavored waters, where acacia gum can also offer fiber enrichment."

This fiber aspect plays into the growing market for products that give the digestive system a boost. Nearly 96 percent of global launches in the 12 months to the end of June 2017 were positioned on a health platform of some kind, with clean labelling and digestive health key areas of interest. Nearly 88 percent of launches carried a clean label positioning of some kind (natural, organic, no additives/preservatives, GMO-free), with organic the most popular individually, used for nearly 80 percent of introductions.

Despite acacia gum's digestive boosting potential, there are hurdles when it comes to labelling. "We know thanks to many trials that acacia gum is a prebiotic fiber but it cannot be labelled and no health claims can be given from it. But literature evidences that acacia gum presents some significant prebiotic effects," she says. "Regarding new trends, gluten-free products stand out. In these products, such as biscuits and bakery, we promote the use of acacia gum for its water retaining capacities and ability to improve the texture of a product. We work on this topic and are receiving a lot of requests to help formulate gluten-free products," she says.

Texture is key

Marketing around texture is trendy: "We work with the replacement of gelatin, and this could be a good opportunity to promote our vegetable based blends." The significant trend within texture at the moment is towards vegetal texturing compounds that can be labelled as organic, clean label and non-GMO. In this space, the company sees a particular demand for ingredients that improve the qualities of plant-based dairy alternatives. Global sales of dairy alternative drinks are set to reach US$16.3 billion in 2018 and they accounted for over 8 percent of global dairy launches recorded by Innova Market Insights in 2017, up from 7 percent over 2016. Actual global launches have more than doubled over a five-year period.

According to Innova Market Insights' consumer research, one in three US consumers have increased their consumption of plant-based milk/yogurt in the two years to the end of 2017. "New drinks based on milk substitutes, such as plant-based milks like coconut and oat, blends of rice starches, almond or soy milks, can face some problems of separation and quick sedimentation of the solids.

Image © iStock.com/mirzamlk

Acacia gum is used to reach a better suspension of solids in vegetable milks," Jaouen explains, adding that the company is seeing significant opportunities for acacia gum in not only plant-based beverages but also for vegan creams, sauces, ice creams and yogurts.

"We are also working on complexes to partially or completely replace gelatin. We will continue to work on these specific opportunities such as high-emulsifying complexes mainly for the flavor industries," she adds.

Supply challenges

As a natural product sourced from Africa, Jaouen remarks that the primary challenge with working with acacia gum is ensuring a reliable supply chain.

"At this time, we have diversified our sources a lot and there are no problems regarding this or the quantities supplies. Of course, our products come from Africa, and we know that there are big opportunities to increase the production of our gums. We are sure that we will not have problems," she says, adding that the company continues to seek ways to increase production.

Considering that the demand for plant-based and sugar-reduced offerings shows no signs of declining, ingredients that can offer much sought after functional properties will likely increase their presence in future NPD, R&D and the industry's focus.

By Laxmi Haigh and Lucy Gunn

Lutein may boost physical activity and mitigate chronic disease, study finds

30 Aug 2018 Nutrition Insight

Higher levels of lutein status may be associated in a wider range of supplements or sports products.

The researchers, affiliated with the School of Health Sciences at the University of South Australia, argued that it is significant because it hints at lutein's role in chronic disease prevention.

"The hypothesis that lutein might increase physical activity is novel. Therefore, while 135 studies were identified that had measured both lutein status and physical activity, only 17 of them formally tested whether there was a relationship between the two," they wrote in their report, published this week in the open-access journal Nutrients.

The big question remaining is what the mechanism is — are higher lutein levels triggered by increased physical activity? Or is having a high lutein level simply indicative of more physically active people, who tend to eat more fruits and vegetables than those less physically active?

Because most studies included in the review were cross-sectional, the authors argued that it may be a case of 'people-who-eat-healthy-also-work-out-more.'

"However, the preliminary evidence from the trial in rats and a double-blind randomized controlled trial in humans suggests that lutein status influences physical activity," they added.

They were referring to a 2014 Japanese study which found that rats given lutein-fortified milk had an increased voluntary run distance, and another from the same year by Australian researchers (the same team that compiled this current systematic review) which found that 19 older adult participants who took lutein had increased physical activity, reduced sedentary time compared to the 20 who took a placebo.

The two studies were the only ones that specifically explored a correlation between lutein and physical activity, while all the other studies analysed only had physical activity levels as a secondary outcome.

To this, the authors wrote that "the lack of formal assessment and/or discussion of associations between lutein status and physical activity in studies that had measured relevant outcomes is indicative of the novelty of the hypothesis that lutein status might influence physical activity."

"If increasing lutein status, or possibly also the status of other carotenoids, is able to increase physical activity, this might be useful for improving physical activity to mitigate the risk of chronic disease," they added. "However, large-scale RCTs are required to confirm effects on physical activity and any associated health benefits."

FOOD SCIENCE & INDUSTRY NEWS

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New research shows how children want their food served

September 3, 2018 Science Daily

The aim of the research from Future Consumer Lab was to investigate whether children prefer their food served in a particular way and whether their gender and age make a difference with regard to their preferences.

'As a researcher, I have anecdotally heard parents say that their children prefer to have their food served in a particular way, including in a specific order. But we do not have much evidence-based knowledge about how children sort and eat their food, which is very relevant when, for example, we want our children to eat more vegetables -- or eat their food in general,' says Associate Professor Annemarie Olsen from Future Consumer Lab, at the Department of Food Science at the University of Copenhagen. In addition to being a helping hand for parents, the research can be used to optimise meal programmes in schools and meals that are delivered to pupils by external suppliers.

Big gains with little effort

We already know that you can get children to eat more fruits and vegetables just by presenting them in small portions and making them freely available, so you can easily grab them and eat them. We also know that the visual presentation affects how much children eat. 'At the same time, it would be nice to know whether there are big gains to be made just by arranging food on the plate in a certain way,' says Annemarie Olsen.

100 children ranked food according to their preferred serving style
The researchers asked 100 schoolchildren, aged 7-8 and 12-14 years, to make a priority list of photos of six different dishes served in three different ways:
1. With the elements of the food presented separately so they did not touch each other
2. As a mix of separate ingredients and ingredients that were mixed together
3. With all the food mixed together

From the children's prioritisation of the displayed photos, the researchers could see which presentation of the food they liked best and which serving style they least cared for. The study shows that the younger girls (aged 7-8) prefer the separate serving style, while boys of the same age do not have a preference for how the food is arranged. The research also shows that children between 12 and 14 prefer food to be either mixed together or served as a mix of separate and mixed-together ingredients.

A separated serving style is the best solution

The research does not say why younger girls prefer to have their food served as separate ingredients. 'One suggestion could be that they believe that the different ingredients could contaminate each other. But it could also be that they prefer to eat the different elements in a certain order or that the clear delineation just provides a better overview,' says Annemarie Olsen, who, based on the research, advises that you serve food separated on the plate -- at least when it comes to the younger age groups. 'The child can mix the food when the various elements of the food are separated on the plate, while the reverse is not possible,' she says.

Probiotics may help battle antibiotic resistance

Medical News Today 17 September 2018 By Tim Newman

The latest study to investigate probiotics concludes that regular use may reduce the need for antibiotics. The authors hope that this might help mitigate the rise of antibiotic resistance.

Added to a range of products, including yogurts, chocolate, and potato chips, probiotics are never far from the headlines.

Image © iStock.com/PeopleImages

According to their proponents, these live strains of yeast and bacteria can help rebalance the bacterial flora naturally found in our gut, imparting a wealth of health benefits. These potential benefits vary widely, and, it is important to note, not all are backed by scientific studies. However, there is good evidence that probiotics can relieve acute infectious diarrhea, and there is growing evidence that they might even help reduce the symptoms of some psychiatric conditions, such as depression and obsessive-compulsive disorder.

Research into the benefits and risks of probiotics is still in its infancy — but it now seems likely that they will one day be medically useful and widely used. Because the importance of gut bacteria is now evident, the race is on to understand exactly how they can be influenced to benefit health.

Probiotics and acute infections
Interventions that are as simple as eating a yogurt are attractive to consumers and physicians alike; however, when meddling with something as complex as the microbiome, gathering and interpreting the data can be challenging. Gut bacteria come in many forms, and they influence many systems of the body; and not everyone responds to probiotics in the same way. All of the above make drawing solid conclusions about their benefits difficult. Existing evidence suggests that probiotics can reduce the risk of developing certain respiratory and gastrointestinal infections. Probiotics also seem to reduce the length of time that an infection lasts.

The latest study, published in the European Journal of Public Health, takes these findings one step further. The scientists wanted to uncover whether consuming probiotics regularly might also reduce the need for antibiotics. To bolster the existing evidence, they dipped into data from recent studies; their paper is the first systematic review to explore the relationship between probiotic use and antibiotic use. In all, their review found 12 relevant randomized controlled trials, all of which investigated daily doses of Lactobacillus and Bifidobacterium on infants and children.

Following analysis, the scientists concluded that infants and children who took a daily probiotic supplement were 29 percent less likely to be prescribed antibiotics. When they repeated the analysis using only the highest-quality studies, that figure jumped to 53 percent.

Reduce antibiotics with probiotics
Senior investigator Dr. Daniel Merenstein, from the Department of Family Medicine at Georgetown University School of Medicine in Washington D.C., believes that the results could have wide-ranging implications. "Given this finding, potentially one way to reduce the use of antibiotics is to use probiotics on a regular basis." Dr. Daniel Merenstein. This study only looked at acute infections in younger people — so, as lead study author Sarah King explains, "More studies are needed in all ages, and particularly in the elderly, to see if sustained probiotic use is connected to an overall reduction in antibiotic prescriptions."

If confirmed, the findings could be important. She goes on, "This could potentially have a huge impact on the use of probiotics in general medicine and consumers in general."

Aside from further explorations that examine other age groups, the researchers also want to delve into the nuts and bolts of this relationship; Dr. Merenstein explains one such theory, saying, "We don't know all the mechanisms probiotic strains may leverage." "But," he continues, "since most of the human immune system is found in the gastrointestinal tract, ingesting healthy bacteria may competitively exclude bacterial pathogens linked to gut infections and may prime the immune system to fight others." There are around 2 million cases of antibiotic-resistant infections each year in the United States, resulting in 23,000 deaths. Finding ways to reduce antibiotic resistance is urgent; perhaps probiotics might offer some valuable assistance.

Indian food minister calls for Big 3 Asian bloc to plan for food security

By RJ Whitehead 27-Sep-2018 - Food Navigator Asia

Harsimrat Kaur Badal pledges an end to food wastage with the help of the industry.

India, China and Indonesia will set the food agenda for providing energy-dense, nutritious, safe and affordable food to their citizens by 2030, when they will account for three-quarters of Asia's new urban dwellers. To do so, there will be a need for a body that will represent each of the three countries and collectively address the issue of fixing Asia's food systems.


Image © iStock.com/paulaphoto

That's according to India's minister for food processing industries, Harsimrat Kaur Badal, who called on the food industry to pledge it would take a "zero tolerance" approach to food waste. Today, she said, close to US$3.5tr of food is wasted through wastage in India—equivalent to Indonesia's entire GDP. Yet the country has the capacity to become the food factory of the world once it reaches its potential.

As India grapples with a series of so-called mega-trends, such as rampant urbanisation, the double-burden of under-nutrition and obesity, constraints in technology and political corruption, policymakers and the private sector need to be active in managing their trends, Badal said in reaction to a major report by the Economist Intelligence Unit on ways to fix Asia's food supply chain. By the EIU's assessment, they have their work cut out.

It called on everyone involved to take a "more holistic" approach to defining food security to cope with structural changes in demand and supply. It also urged lawmakers to come up with brisk and thorough policy development to find ways to improve food production by making it more efficient.

The research shows that business leaders overwhelmingly agree that Asia's food security is giving a cause for alarm. They are calling out for more collaboration to enforce food safety standards, educate farmers and improve supply chain infrastructure, it said.

Yet a number of other factors, including differing regulations, border policies, import duties and taxes, food tastes, self-sufficiency programmes and uneven economic development require more robust thinking and policy solutions for Asia's food system to make the progress needed. Asian cities are set to expand by 578m people by 2030, while up to 85% of the increase in the global middle-class is also expected to come from Asia. To this end, urbanisation will have a significant effect on food production and demand in the region, the EIU said. China, India and Indonesia alone will account for 75% of Asia's total population, and 60% of its real GDP by 2030. Income growth across the continent will continue to drive the transition away from direct consumption of cereals and towards a more diverse diet.

Dairy and eggs will account for a larger proportion of calories consumed in India (6%) and China (4%) than in Indonesia (1%). India has a strong vegetarian culture, but projections estimate that India's meat consumption (mainly chicken and fish at 63%) will rise to 9kg by 2050, from a base of 3kg. The government can extend the progress made through policy changes, regulatory measures and encouraging public investments to make food systems more responsive to nutritional needs, the report said. Improvements in nutritional status will not happen unless the incomes of rural households increase, prices of nutritious foods are kept affordable, and households are better informed about nutritional content of food and the need to diversify their diets.

Indian sports nutrition retailer Muscle and Strength powering ahead with store openings

By Cheryl Tay 03-Sep-2018 - NutraIngredients Asia

Indian sports nutrition retail chain Muscle and Strength India has opened its fifth store within just six months of being in business, and is capitalising on its growing popularity to educate consumers.

After the success of the company's four existing stores (three in New Delhi, one in Gurgaon), it opened a fifth store in Ghaziabad on July 27. Muscle and Strength India is an authorised retailer and distributor of 39 well-known fitness supplement brands, including BSN, Cobra Labs, Dymatize Nutrition, MusclePharm, Optimum Nutrition, Ronnie Coleman and Ultimate Nutrition.

Education on supplementation
The firm positions itself as a provider of genuine, high-quality fitness supplements and sports nutrition products in a bid to appeal to customers who have grown wary of counterfeit supplements and products containing prohibited substances. Founder Sourav Kumar, a former national swimmer, told NutraIngredients-Asia:"Having been in the fitness industry myself for eight years, I was always very curious about how supplements worked, and how they fit into the Indian market. "But I found that so many people did not know what they were consuming, and I decided to take things to the next level by not only opening a retail store, but helping to educate consumers on different supplements and what they should look out for when buying such products."


Image © iStock.com/MRBIG_PHOTOGRAPHY

He highlighted the prevalence of counterfeit sports nutrition products in India, which were not only unauthorised but also contained prohibited and harmful substances. "There are a lot of duplicate and fake supplements imported from China, and many of the manufacturers behind these products add harmful substances like glucose powder and steroid salt into them. "But a lot of people don't what they're putting into their bodies, and end up harming themselves as a result." Indeed, there have been issues in recent years regarding prohibited substances in sports nutrition products in India, which has caused authorities to clamp down with stricter regulations for both manufacturers and retailers.

To counter this, Muscle and Strength India has an in-house team of researchers who gather relevant information and use it to publish educational articles on the company website, as well as its social media pages. It also has a media team that produces educational videos for customers. Kumar said, "We educate the customers on how to identify fake supplements, based on quality checks we perform. For instance, the official importer label should be on the product, and customers should be able to use the barcode and serial number to trace the item back to its original manufacturer." He added that supplements such as protein powders, BCAAs, multivitamins, fat-burners and pre-workout formulations were most popular amongst both male and female Indian consumers.

No chances taken

He further said that Muscle and Strength India "does not take any chances" when it comes to ensuring the quality and safety of its products, providing a clear description of each item's composition and nutritional value for different types of consumers.

The company claims to have the widest range of fitness supplements and sports nutrition products in India, with over 600 products from 39 brands, and it plans to increase its reach. When it comes to competition from large MNCs like GNC, Kumar is not worried. "Their target market is also different from ours — they sell products for the general population, while we are focused on those who are physically active, who go to the gym and who engage in athletic training. We are not worried about competition in that regard.

E-commerce is another area in which he feels confident. "In this area, there are major market players like Amazon, where anyone can register and sell supplements. However, customers are unable to verify the authenticity of these products. "Our strategy is to sell our products both online and in stores for the same price, and regardless of where customers choose to buy them, they can access the information behind the safety and authenticity of our products." He added, "In 2018, we plan to open another 25 stores in India, particularly in the West, South and North-East parts of the country.

At the same time, he is considering bringing the chain overseas, saying, "We are currently concentrating on India, but once we are more established here, we will look at which countries we might want to enter. "We are also open to FDI (foreign direct investment), and we are going to add more brands to our inventory within the next two to three months. "We might even become the exclusive partner for some brands that are not in India yet, and we have spoken to these brands. But as of now, that is all I can say."

Indian state government rolls out flagship four-week nutrition programme for mothers and children

By Cheryl Tay 12-Sep-2018 - NutraIngredients Asia

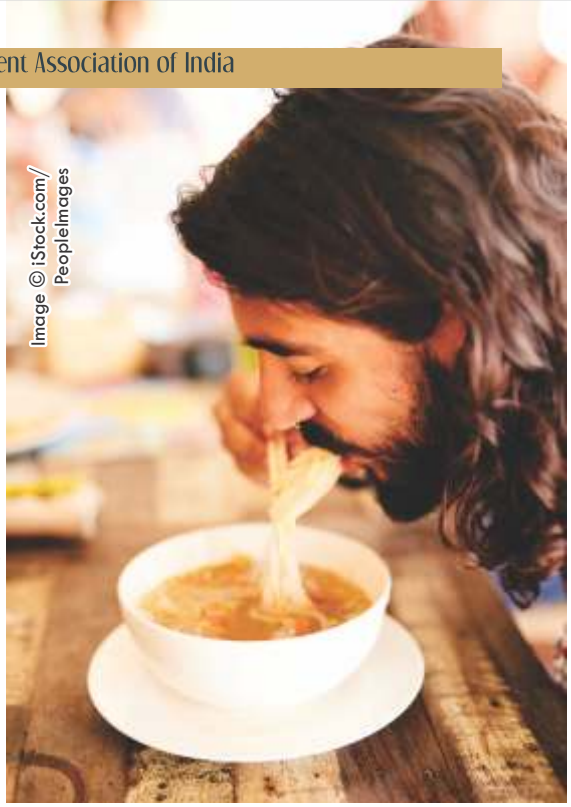
The state government in Telangana, India, has announced its Intinta Poshana Samburalu (Nutrition in Every Home) initiative targeted at children, pregnant women, and lactating mothers.

The initiative is part of India's flagship Poshan Abhiyan programme to ensure better nutritional outcomes for the aforementioned demographics. It is is to be conducted according to plans drawn up by the Department of Women and Child Welfare, and in conjunction with voluntary organisations, schools and individuals.

These programmes and initiatives have been timed to coincide with the month of September, which has been declared 'national nutrition month' in India. The Intinta Poshana Samburalu initiative, has already implemented 'Anganwadi to every home' in the Vikarabad district of Telangana, where there are currently 1,106 Anganwadi centres (rural childcare centres) across its five Integrated Child Development Services.
These centres cater to 7,089 pregnant women, 6,530 lactating mothers and 65,062 children.

Weekly schedule

The Poshan Abhiyan programme will take place over the course of four weeks. The first week will see district officials addressing the general public in a series of meetings to help raise awareness on nutrition, while in the second week; there will be rallies in the village to encourage greater public participation. This will be followed by nutrition exhibitions held in the villages in the third week, and will end in the fourth week with awareness campaigns to educate people on the effects of malnutrition on pregnant women, lactating mothers, and children.



Anganwadi workers will conduct house visits to distribute medicine and nutritional supplements to those suffering from malnutrition, as well as to explain the importance of a balanced diet, essential vitamins, and proper hygiene.

Government officials said in a statement: "This programme is to increase awareness among pregnant and lactating mothers on nutrition. Our focus is on minimising anaemia and malnutrition among women, and decreasing the number of low birth weight children. "We will visit every home and explain people on various aspects of nutrition and infant and newborn care."

There have been several nutrition initiatives rolled out in India recently, targeted at mothers and children. Last month, India's Central Food Technological Research Institute announced its collaboration with Hassan's deputy commissioner to develop a nutritional powder for pregnant and lactating women. Iron-deficiency anaemia is also especially common among women in South Asia, leading authorities to concentrate on iron fortification of foods.

Noodle sales bounce back as major Asian markets report first annual rises in five years

By Pearly Neo 03-Sep-2018 - Food Navigator Asia

Asia has retained the top five spots for instant noodle consumption worldwide, with four out of the top five countries recording year-on-year growth.

According to new figures from the World Instant Noodle Association (WINA), China and Hong Kong have remained the top consumers of instant noodles worldwide for several years running.

This year was no different, as they topped the charts with 38.97 billion packets sold, outstripping the first runner-up on the list, Indonesia (12.62 billion packets), by over three times.

Coming in at third, fourth and fifth spot respectively were Japan (5.66 billion packets), India (5.42 billion packets) and Vietnam (5.06 billion packets).

Indonesia was the sole country amongst the top five spots to see a decline in numbers. The rest of the top five recorded positive annual growth. This is being attributed to the development of healthier versions of instant noodles. "If we offer healthier, safer products, demand will surely grow," said Kiyotaka Ando, Chairman and CEO, Nissin China.

Healthier options bringing instant noodles back on the charts

Instant noodles are designed to have a long shelf life. This is commonly achieved via a high salt content – the noodles can contain more than half of the FDA-recommended sodium intake.

As such, healthier noodle options mostly focus on the reduction of salt content. Nissin has announced "reduced sodium by an average of 15% across all flavours", as well as removal of added MSG and artificial colouring from its products. Nestle is doing the same, with plans to cut the salt content in all Maggi products by 10% on average come 2020. It also offers a high-fibre option, Maggi Oatmee.

The rise and fall of instant noodles
The convenience and economical value of instant noodles are amongst the key factors attributed to its continued strong market presence. In 2013, sales in China and Hong Kong peaked at 46.22 billion.

However, the following three years saw a continuous downturn in numbers, dropping 17% to 38.52 billion in 2016. This plunge was attributed to the growing popularity of food delivery, as well as increasing awareness of healthier foods.

This pattern of decline was similar in other countries in Asia that consistently top the instant noodle consumption list, although the reduct was less significant.

China remains main market
These latest figures ensure that China and Hong Kong will be key target markets for instant noodle manufacturers. Nissin Food Holdings, a Japan-based instant noodle manufacturer, holds roughly 60% of the local market in Hong Kong and is the fifth biggest brand in China. The Chinese demand for instant noodles is almost eight times more than Japan's (5.66 billion).

"There are more people, and people spend more. I'm under the impression that the market for young people is growing faster in China than in Japan. The time is ripe for higher-priced instant noodles to gain ground strongly," commented Nissin president Koki Ando.

Pandan sesame cookies and reduced-sodium noodles. . . US dairy innovations for Asian consumers

By TingminKoe 04-Sep-2018 - Food Navigator Asia

The US Dairy Export Council (USDEC) and Food Innovation and Resource Center (FIRC) at Singapore Polytechnic have created South East Asian food with reduced salt and sugar, using US dairy ingredients.

One example, was the use of pandanflavoured US permeates in cookies, said Martin Teo, technical director (food applications) at the export council. Others include gulameleka coconut cake made with 75% US permeate. Permeate, also known as dairy products solids, is a high-lactose dairy ingredient produced through the removal of protein and other solids from milk or whey via physical separation techniques.

Teo was speaking at a lunch event organised by the council last month. The event showcased beverages, bakery and culinary food made with the US dairy ingredients. He noted that permeate was widely used in the US for the past ten years but remained relatively new in Asia. Containing at least 76% of lactose and typically 2% to 7% of protein, permeate is a functional ingredient that gives products its texture. It can also reduce the use of salt and sugar in products. Besides bakery and confectionery, it could be used in beverages and even savoury products such as soup and sauces.

"A lot of people think that dairy has got nothing to do with savoury food, but in fact, permeates can reduce the use of salt," he said. An example of a savoury product innovation that uses the US permeate is the seasoning blend for instant noodles. Teo added that the food recipes could be accumulated into recipe books. "The collaboration with the FIRC could translate into recipe books which could be given out to end-users as a reference for them to further research and developed their in-house products," he said.

"We want to localise and adapt the food applications (of US dairy ingredients) to the South East Asian taste profile. There are many ways to innovate US dairy to suit the local taste buds," DalilahGhazalay , SEA regional director of the export council added when speaking at the event. The council and FIRC signed a partnership agreement in May to incorporate the use of US dairy ingredients into the making of SEA local food.

Trends and Statistics
As a single country, the US is the largest milk producer, producing 97.7 million metric tons of milk, which is three times the size of Oceania combined. South East Asia is the second-largest market for US dairy export, with a value of US$690m last year. Canada was the biggest export market, valuing at US$636m. Within the region, the Philippines was USDEC's largest market, followed by Indonesia, Ghazalay pointed out. Products wise, skim milk powder, whey, lactose, and cheese are the most popular US dairy products in the region. In terms of consumer trends, Ghazalay noticed that the SEA consumers were increasingly conscious of artificial food ingredients, preferring natural, clean label products.

In addition, consumers across all life stages are working actively towards health and wellness, she said. In order to help food and beverage manufacturers in SEA further understand the use of US permeate, the export council had conducted three workshops at FIRC recently, where participants were able to create food products with the permeate. Some examples of their creation included spicy sambal cookie, layered cake, and bamboo charcoal cookie.

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REGULATORY NEWS

Commission mulls cut in maximum levels for nitrites and nitrates in meat

By Niamh Michail 29-Aug-2018 – Food Navigator

The European Commission is considering lowering the maximum authorised levels for nitrites and nitrates in processed meat for health reasons, it has revealed.

Despite concerns to human health, sodium and potassium salts of nitrite and nitrate (E 249-252) are used by food manufacturers as preservatives and colour-fixing agents in meat products, and to prevent bacterial infections such as Clostridium botulinum. In a written question, the French members of EU parliament Guillaume Balas (S&D) and MichleRivasi from the Green party asked the Commission how it justified their use in food. "Scientists have been alerting us of the indirectly carcinogenic nature of added nitrates and nitrites since the 1970s. These food additives […] are not directly carcinogenic. However, when brought in contact with meat, the nitric oxide present in these additives produces carcinogenic substances that increase the risk of consumers developing colorectal cancer. "The argument that use of these additives protects food from botulism is invalid: strict hygiene conditions offer sufficient safeguards," they added, asking if the Commission intended to ban the additives.

Responding to the politicians, health and food safety commissioner VytenisAndriukaitis said the EFSA scientific opinions provided sufficient information on the safety of the additives, and they"did not justify a general ban of the use of these substances as food additives". He added: "Nevertheless, after discussions with the member states, the Commission is considering revising the current food additive authorisations for E 249-252 to lower the uses and use levels to the extent possible, in the light of the EFSA opinions, as well as the 2016 study [by the Commission which stated that pork products can be produced without nitrates]. This would likely contribute to a decrease in the overall exposure."

Balas and Rivasi drew attention to the fact that when the European Food Safety Authority (EFSA) re-evaluated nitrite additives last year, they failed to take account of the carcinogenic effects of metabolised nitrite additives when advising on maximum levels. Paolo Patruno, deputy secretary general of Clitravi, the trade body that represents the interests of Europe's processed meat manufacturers, said: "It is important to understand that nitrates and nitrites are used for food safety purpose and that the 70% of the human intake of nitrates and nitrites comes from vegetables, the 13% from water and the 11% from processed meat products. "In order to reduce the exposure and where possible, in any case and on a voluntary basis, our food and beverage operators (FBO) are using lower levels than the ones authorised.

"The statement of Commissioner Andriukaitis is in line with the EFSA opinion, as he clearly admits that lower levels would reduce the overall exposure, but it is important to bear in mind that processed meat products are not the main source of nitrates/nitrites if we consider the overall diet. "Clitravi is ready to discuss the issue with the European Commission, always by taking into account that food safety comes first," Patruno told FoodNavigator..

In 2015, the World Health Organisation's cancer research agency, the International Agency for Research on Cancer (IARC), added processed meats such as cured meats, sausages and bacon to its list of cancer-causing agents. After evaluating the evidence, it found that processed meats are definite causes of cancer alongside substances including cigarettes, alcohol, asbestos, plutonium and arsenic. IARC scientists suggested that a daily 50 g portion of processed meat increases the risk of colorectal cancer by 18%.

Food fortification in India: Regulator FSSAI publishes updated dosage levels as it strives for national adoption

By Cheryl Tay 21-Aug-2018 – Food Navigator Asia

India regulator FSSAI has published updated rules for food fortification standards, as part of its efforts to make the practice part of the national agenda.

The regulator first implemented the Food Safety and Standards (Fortification of Foods) Regulations in October 2016, with fortification guidelines for staples such as rice, wheat flour (folic acid, iron, vitamin B12), milk, edible oil (vitamins A and D) and salt (iodine and iron). In addition, the '+F' logo was introduced to identify fortified foods, and the Scientific Panel on Nutrition and Fortification approved the Scientific Health Claims for label declaration of fortified foods.

More micronutrients

The latest notification refers to the updated set of regulations as the Food Safety and Standards (Fortification of Foods) Regulations 2018. By January 1 2019, all food business operators must comply with "all the provisions of these regulations", with permitted dosages of added micronutrients recommended by the panel adjusted to provide 30% to 50% of each individual's daily requirements. The permitted dosages provide a minima and maxima range for the fortification of staple foods like wheat our (also called atta or maida), rice, salt, milk, and vegetable oil. The range allows for an additional 10% of micronutrients above the dosage recommended by the panel, though the figure is 20% for vitamins A and D.

Quality, labelling and promotion

The updated regulations also state that "every manufacturer and packer of fortified food shall give an undertaking on quality assurance and submit evidence of steps taken" to the FSSAI twice a year. These undertakings are to include details such as certification by an FSSAI-approved food laboratory that the fortified food complies with the official standards, regular technical equipment and process audits, and good manufacturing practices (GMP). Additionally, every package of fortified food must have the words "fortified with, followed by the name of the added micronutrients, along with the '+F' logo in either blue or black.

The FSSAI has also made clear its intention to "encourage the production, manufacture, distribution, sale and consumption of fortified food — including fortification through conventional breeding or hybridisation — in cooperation with concerned departments of the government of India or governments of states / union territories". At present, 110 brands of all five fortified staples by 62 of India's major firms have hit the open market across the country — a marked contrast from just eight months ago, when companies were slow to make the necessary changes, especially for milk and edible oils.

Today, 21% of the milk industry adheres to the fortification standards, while 47% of the edible oil industry doing the same. In light of these positive developments, the FSSAI has proposed mandatory fortification of staples as the way forward. Already, the Ministry of Women and Child Development and Ministry of Human Resource Development have made fortified staples mandatory, with government programmes such as Integrated Child Development Services (ICDS), Mid-Day Meal (MDM) and the Public Distribution System (PDS) using them. Just last month, the Indian government announced that 118 districts in the country would receive fortified rations. Shortly after, the government of Haryana announced an extension of fortified food supply under the PDS.

Today, 15 states in India — including Odisha, Karnataka, Gujarat, Uttar Pradesh, Maharashtra, Tamil Nadu, West Bengal, and Kerala — as well as three union territories, have adopted the fortification of certain commodities on the district level, or to varying extents under programmes such as the ICDS, MDM and PDS. In fact, the FSSAI has published a report entitled Food Fortification in India: Status and Road Ahead — Need for a Strategic Shift for Further Scale Up, which details the need for a strategic shift to scale up government-funded fortification programmes. The report also estimates that an additional Rs 300bn — approximately 1% of the overall existing budget for the ICDS and MDM — would enable fortification to be implemented across the entire country.


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FSSAI initiates framing of GM food regulations after trace ingredients found in products

By Lester Wan 09-Aug-2018 – Food Navigator Asia

The Food Safety and Standards Authority of India (FSSAI) says it has begun framing regulations for genetically-modified (GM) food, shortly after being accused of failing to restrict the import of such items.

FSSAI said the regulations would "lay down procedures for safety assessment and approval of foods including imported foods, derived from genetic modification processes based on the internationally well established and accepted scientific principles, procedures and practices before being approved for food purposes" . After formal approval of FSSAI's Scientific Panel, Scientific Committee and the authority itself, the draft regulations will be notified in the Gazette of India to elicit comments from various stakeholders. FSSAI said these will be duly considered, after which the regulations will be finalised with the approval of the Government of India. Prior to the approval of such foods, FSSAI would be in charge of the assessment of their food safety, while the Genetic Engineering Approval Committee (GEAC) of India's Ministry of Environment, Forest and Climate Change would assess aspects related to their environmental impact.

Fallout after recent scandal

Recently, stores in Delhi, Punjab and Gujarat were found to be selling genetically-modified (GM) foods, according to the Centre for Science and Environment's (CSE) Pollution Monitoring Laboratory of India. CSE claimed that out of 65 products tested, 21 were found to be GM-positive. These products included cooking oil, packaged food and infant food. Some also made false claims of being GM-free. Under India's Food Safety and Standards Act, 2006, no person shall manufacture, distribute, sell or import any genetically modified (GM) article of food except under the Act and regulations made thereunder.

In the wake of that scandal, the Coalition for a GM-Free India had accused the Government of India of "actively jeopardising the health of all Indians by allowing illegal hazardous GM foods" and that it "knowingly created a regulatory vacuum in which there is no authority taking responsibility to put a check on such GM foods from coming into our food supply chain".

"This is highly irresponsible and reprehensible," said the Coalition. "The fact that every regulator and ministry has failed in the discharge of its responsibility shows a sinister and wilfully dangerous pattern that seeks to jeopardise and compromise on the health safety of citizens of India. The Coalition for a GM-Free India now appeals to the Prime Minister of India to urgently intervene in the matter, to fulfil the BJP Manifesto promise of 2014, and ensure that citizens are not subjected to the hazards of GM foods."

Lack of action damning?

Furthermore, the Coalition recently wrote to FSSAI CEO ShriPawan Kumar Agarwal "seeking concrete action". The Coalition pointed out that it first wrote to Agarwal and FSSAI months before, on March 16, on the illegal import and sale of GM foods in India, that were in violation of the Food Safety and Standards Act on GM foods. "The lack of action by FSSAI tells the citizens of this country that, as the food safety regulator, you are knowingly allowing this illegal proliferation of unpermitted and hazardous GM foods in the country," said KavithaKuruganti, co-convenor, on behalf of the Coalition. The statement further called FSSAI's response "wholly inadequate" and said it "does not create any confidence in ordinary consumers/citizens that FSSAI is serious about regulating unsafe illegal foods in the country".

GM labelling threshold

These new FFSAI regulations will be in addition to the Food Safety and Standards (Labelling and Display) Regulations , 2018, which the regulator said would for the first time include mandatory labelling for packaged food items with 5% or more GM ingredients. Agarwal had said this would help to "bring clarity" but critics, including CSE, had said that not only is this measure not stringent enough, there is also a question about enforcement. CSE said, "We believe that the criteria for exemption from labelling of food containing GM ingredients needs to be much stricter. "Considering that GM food is not allowed in India, we believe that the limit of 5 per cent for three ingredients is too high. "We recommend that limits for individual ingredients should be set in line with the EU regulations of 0.9 per cent."

Nonetheless, FSSAI reiterated, "These proposed regulations will further bind food businesses to provide appropriate information to the consumers so as to enable them to exercise their informed choice in respect of purchase of foods, including GM foods, should any such foods be approved for manufacture or import in India." FSSAI stressed that the threshold level for labelling of GM foods refers to the maximum permissible level (in percentage) of unintentional and technically unavoidable GMO content in food that does not call for labelling and that a large number of countries including Japan, Canada, Thailand and Indonesia prescribe such a threshold value of 5% by weight. FSSAI further pointed out that the cost of demonstrating or verifying compliance to the specified threshold increases as the threshold level decreases. "The proposed labelling of GM food in India falls within the range of internationally followed threshold level and seems to be practical and cost effective," it stated.

FSSAI shines fortification spotlight on dairy sector while hitting out at critics

By Cheryl Tay 17-Sep-2018 - NutraIngredients Asia

The FSSAI is once again urging manufacturers to fortify their staple foods, this time shifting its attention to India's dairy firms to encourage them to adopt voluntary milk fortification.

The regulator took the opportunity to address dairy companies at its national consultation on milk fortification in New Delhi, held just two weeks after it had published a notification detailing its updated guidelines for food fortification. The consultation — jointly organised by the FSSAI, Tata Trusts and the National Dairy Development Board (NDDB) — was attended by about 35 private dairy companies and 10 state cooperatives, who participated in an open house discussion on food fortification.

Topics covered included the cost of fortification, sources of vitamins for fortification, and quality control. In addition, early adopters of voluntary milk fortification, including Mother Dairy and the Jharkhand Milk Federation, were given a special mention at the consultation in recognition of their compliance. Milk processors at the event voiced their support for the fortification initiative, promising to fortify a higher percentage of their milk products by the end of 2018. At the moment, 13 state cooperatives and 11 private dairy companies offer fortified milk products.

FSSAI CEO Pawan Agarwal assured attendees that the vitamins and minerals used for fortification were obtained solely from vegetarian sources, and that costs would be kept to a minimum for all commodities, especially milk. He said milk fortification cost only 2 to 3 paise (2% to 3% of a rupee) per litre, and companies that had been fortifying their dairy products, such as Mother Dairy, had been absorbing these costs. He added that food fortification is the most cost-effective and internationally recognised method of countering micronutrient deficiencies. He also revealed that the FSSAI had received requests from certain ministries and government bodies to make food fortification mandatory, but that the regulator first wanted to determine if the industry was ready, as "fortification needs to be scaled up step by step before being made mandatory" .

Retaliation to criticism

"A large majority of stakeholders are in favour of food fortification but a few misinformed elements are creating confusion around the issue. We need to ensure it does not get derailed due to misinformation or lack of awareness." He was referring to the recent onslaught from civil society organisation Swadeshi Jagaran Manch (SJM), which had levelled harsh criticism at the FSSAI for allegedly harbouring an ulterior motive behind its food fortification efforts, driven by its relationship with MNCs and foreign NGOs.

More specifically, SJM accused the FSSAI of permitting the use of synthetic vitamins for fortification, as well as not ensuring the ingredient sources were vegetarian. It even wrote a letter to PM Narendra Modi in a bid to prevent the regulator from making food fortification mandatory. Agarwal said the FSSAI's scientific panel consisted of scientists and public health experts, who had finalised its food fortification standards only after careful assessments and deliberations over the course of a year and a half. "Let public health issues be dealt with by scientists and experts in the FSSAI. If there are concerns regarding the (fortification) standards, they need to be looked at by the scientific panel."


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India's new packaged foods rules: Back to the drawing board for red warnings on 'unhealthy' products?

By Gary Scattergood 21-Aug-2018 - Food Navigator Asia

An expert panel has been set-up review India's proposed new packaged foods labelling rules, which include controversial plans to for red labels to be added to products high in fat, sugar and salt.

Regulator the Food Safety and Standards Authority of India (FSSAI) established the three-member committee after food firms expressed concerns about the proposals. The draft regulations stated that packaged food manufacturers and firms are required to declare nutritional information such as calories (energy), total fat, trans-fat, total sugar and salt per serve, as well as per serve percentage contribution to the recommended dietary allowance (RDA). Other requirements in the comprehensive set of guidelines include a symbol on the label indicating whether it is vegetarian or non-vegetarian food (a green triangle or brown circle, respectively).

Red list

Most significantly, it would be mandatory for food products with high fat, sugar or salt content to display a red-coloured mark on the front-of-pack label. "The blocks of nutrients for "High Fat, Sugar and Salt" (HFSS) food shall be coloured red in the case where the value of energy (kcal) from total sugar is more than 10 per cent of the total energy (kcal) provided by the 100 g/100 ml of the product; the value of energy (kcal) from trans-fat is more than 1 per cent of the total energy (kcal) provided by the 100 g/100 ml of the product; and total fat or sodium content provided by the 100 g/100 ml of the product is more than the threshold values," the draft regulation stated. It added: "The Food Authority may introduce colour coding system in addition to marking of foods as 'Red' within the specified thresholds from time to time." Furthermore, it stated that it would be prohibited for HFSS food products to be advertised, in any form, to children.

However, Pawan Agarwal, FSSAI CEO said the plans would now be looked at again, despite the draft already being sent to the Health Ministry for finalisation. "Industry stakeholders have expressed concerns," he said. "So we have decided to set up aa panel of experts with health and nutrition background to look into the draft regulations." Despite this, it is though highly unlikely that the regulator will backtrack significantly on the plans.

Eat right

Regulators believe the new rules will provide consumers with greater information, something deemed vital to curb the nation's rising cases of obesity and diabetes. Industry, however, will continue to lobby against the plans and will point to voluntary measures it is already taking to improve the nutritional content of products, while also increasing consumer education.

Several major firms recently joined a broad coalition of regulators, health bodies and manufacturers under the banner of the 'Eat Right Movement' to help curb India's alarming rates of non-communicable diseases. It aims to encourage citizens to make healthy food choices, while also 'nudging' firms to promote healthier food options and provide better nutritional information to consumers through the phasing out of trans-fats in food products (by the edible oil industry, bakeries and halwais) by 2022, and the reformulation of products by major food firms to reduce the content of sugar and salt in packaged food.

Some of the companies which have committed to this effort include Baggrys, Britannia, Fieldfresh, Del Monte, HUL, Kelloggs, Kraft Heinz, Nestle and Patanjali.

Regulatory Review: The Latest Supplement and Functional Food Policy Developments... in One Place

By Gary Scattergood 05-Sep-2018 - Nutra Ingredients Asia

In the first of our monthly reviews of the latest supplement and functional food regulatory and policy news, we reveal the most recent developments in China, Japan, India and New Zealand, while also shining the light on decisions from the UK and US.

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China

The Chinese authorities have approved new e-commerce rules, with lawmakers now calling for a 'complete regulatory system' to also cover cross-border transactions. The new e-commerce laws will come into effect from January 1, 2019. The rules were adopted after a fourth reading at the bi-monthly session of the Standing Committee of the National People's Congress that ended last Friday.

The new law requires e-commerce sites to abide by import and export administrative rules – a rule which drafting committee members have repeatedly pushed for during the five day meeting. It came after we revealed a week earlier that China looked set to implement new cross border e-commerce (CBEC) rules on January 1 next year, according to New Zealand Trade and Enterprise (NZTE).

Elsewhere in China, More daigou traders are being sued for selling food and supplements that do not contain Chinese labelling. Some were ordered by the court to make compensation that was 10 times higher than the price of the product sold. One daigou trader was ordered to make a compensation of 10,240 yuan (about US$1500) – 10 times the price of a supplement product she had sold via Taobao.

Japan

Japan's Ministry of Health, Labour and Welfare has revised an ordinance to permit the production and sale of liquid infant formula, leading some of the country's biggest players to express an interest in entering the market.
Meiji is one of the firms that has already commenced with product development. It is also discussing the types of product and packaging that would suit the Japanese market, a spokesman said in response to NutraIngredients-Asia's queries. The firm also plans to invest in production line to manufacture the product.

India

Indian regulator FSSAI has published updated rules for food fortification standards, as part of its efforts to make the practice part of the national agenda. The latest notification refers to the updated set of regulations as the Food Safety and Standards (Fortification of Foods) Regulations 2018. By January 1 2019, all food business operators must comply with "all the provisions of these regulations", with permitted dosages of added micronutrients recommended by the panel adjusted to provide 30% to 50% of each individual's daily requirements. The permitted dosages provide a minima and maxima range for the fortification of staple foods like wheat flour (also called atta or maida), rice, salt, milk, and vegetable oil.

Also in India, an expert panel has been set-up review India's proposed new packaged foods labelling rules, which include controversial plans to for red labels to be added to products high in fat, sugar and salt. Regulator the Food Safety and Standards Authority of India (FSSAI) established the three-member committee after food firms expressed concerns about the proposals.

New Zealand

New Zealand's Chief Science Advisor and the Royal Society TeApārangi have backed the health benefits of fortifying bread with folic acid, adding to calls for mandatory fortification in the country. Their new report looked in detail at neural tube defects (NTDs) in New Zealand, which formed the basis for recommending folic acid fortification for bread. The most recent data showed that in 2013, 18 babies were born with NTDs and six were stillborn with an NTD.

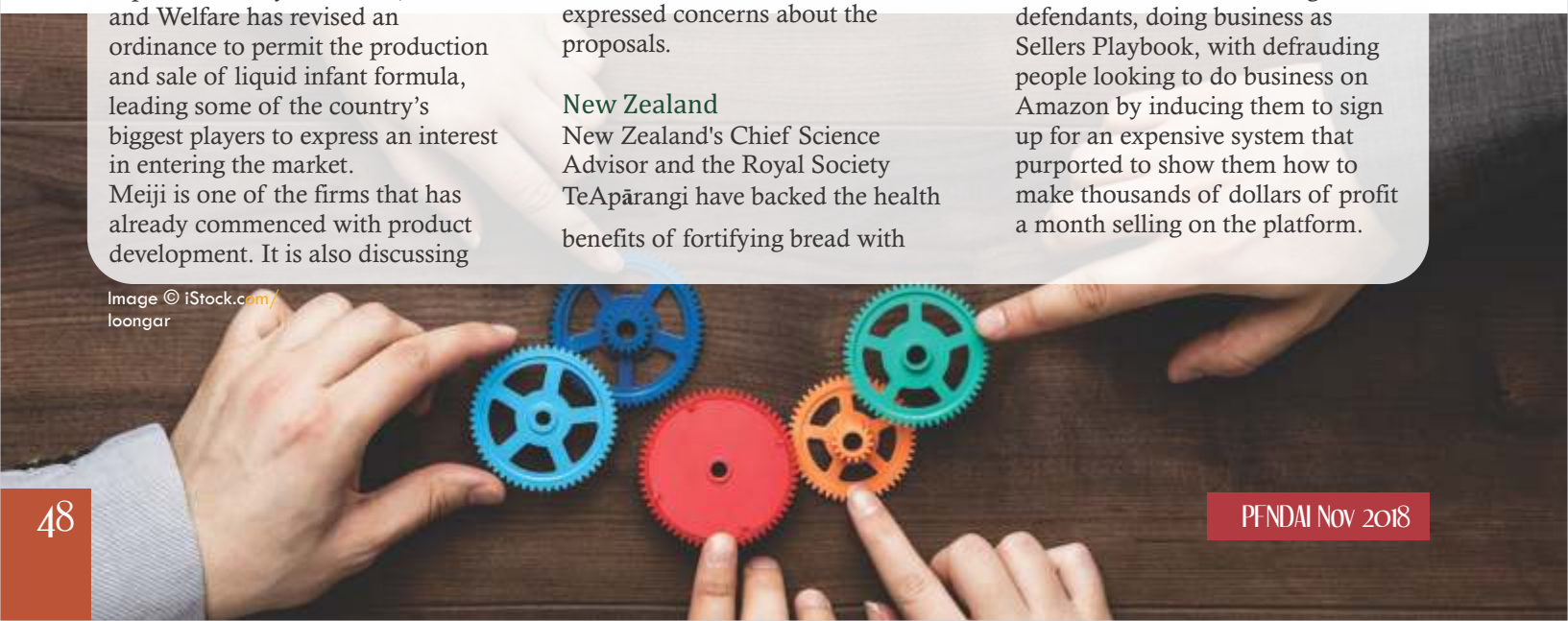
UK

The UK government is proposing a ban on the sale of energy drinks to children, following on from moves made by major supermarkets to ban sales to U16s in their stores. A government consultation outlines a ban that would apply to drinks with more than 150mg of caffeine per litre, and prevent all retailers from selling the drinks to children. It is now seeking views on whether sales of energy drinks to children should be stopped.

While a number of major retailers have already banned the sale of energy drinks to children, it is not a legal requirement and children can still easily buy energy drinks from convenience stores, other retailers and vending machines.

US

The US Federal Trade Commission has moved to shut down a fraudulent scheme that purported to show how to make more money selling products on Amazon. The action was taken in concert with the State of Minnesota. It charged the defendants, doing business as Sellers Playbook, with defrauding people looking to do business on Amazon by inducing them to sign up for an expensive system that purported to show them how to make thousands of dollars of profit a month selling on the platform.



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APPLICATIONS

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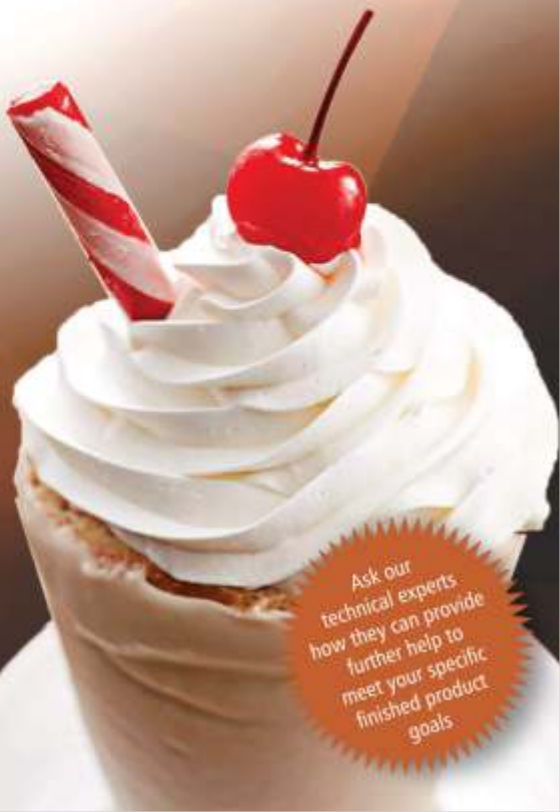

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