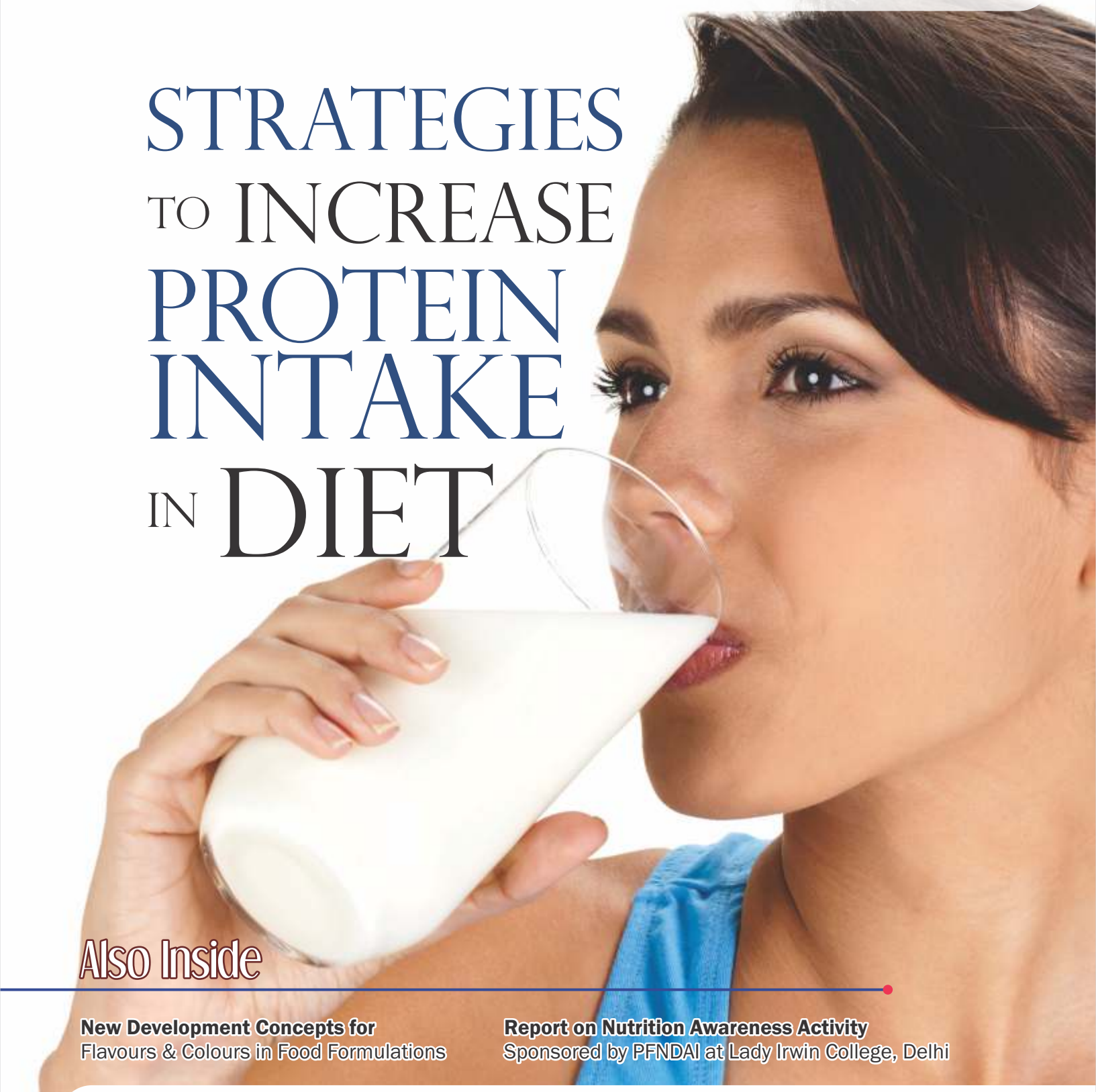
APR 2018

PFNDAI Bulletin

FOOD, NUTRITION & SAFETY MAGAZINE



STRATEGIES TO INCREASE PROTEIN INTAKE IN DIET

Also Inside

New Development Concepts for
Flavours & Colours in Food Formulations

Report on Nutrition Awareness Activity
Sponsored by PFNDAI at Lady Irwin College, Delhi

PROTEIN FOODS AND NUTRITION DEVELOPMENT ASSOCIATION OF INDIA

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FOOD, NUTRITION & SAFETY MAGAZINE

COVER STORY 3

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EDITORIAL

The industrialized world has been using plastic for a long time and it has been used for all kinds of applications even at times replacing some of the body organ parts as well as such industrial applications as gears and other machine parts for which metal was used earlier.

In many applications it is advantageous to resist degradation by nature so it can last for a long time without being replaced. However, when it comes to many single use applications, the same property becomes undesirable. Many fast moving consumer goods including food products and ingredients, cosmetics, toiletries, and medicines etc. are being preferably packed in plastic containers as it is inexpensive, light-weight and clear so consumers can see the product inside. It becomes even more convenient when it comes to smaller sachets, which are quite easily filled and sealed in plastic materials which can also be metalized and printed in multicolour. Consumers can also buy a small sachet at a time and consume the product inside.

Consumers buying fresh fruits, vegetables, and even shopping for various things are demanding carry bags which are then thrown away after use. What is convenient to industry and consumer has become a problem for the society.

Unfortunately, these packs after use are discarded by consumers any place and municipalities are unable to recover them and dispose them properly so they not only lie in public places making them unsightly, but also create problems of pollution and clogging of drains creating more severe problems of flooding. Even animals at times eat them along with other garbage causing problems for them as well.

Several companies have come up with green plastic or biodegradable plastic. Most products are presently made with polylactic acid which is produced from starch and the plastic can be degraded by microbes within months. Although their applications may be limited compared to a large number of different plastics available and produced from petroleum products, some companies have shown its viability in some applications. Properties of biodegradable material with respect to strength, air-water-oil transmission rates etc. need to be comparable to present material in use.

Indian companies have been selling plastic carry bags and some of the other materials made out of biodegradable plastic. The cost may be slightly more but still quite reasonable. One company's website showing price of carry bags as Rs 150 per 100 units. There may be other companies who are also producing them and when the market grows the cost will come down further. Several stores have started giving biodegradable carry bags so this will become a very common phenomenon soon.

Government must encourage the development and production of biodegradable plastic along with making rules to control and/ban plastic use. Even awareness needs to be spread so people will try to opt for a safer alternative. We hope that industry also tries to use the alternative and try to spread the awareness among its consumers.

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STRATEGIES TO INCREASE PROTEIN INTAKE IN DIET

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India is a diverse country in terms of culture, food habits, culinary beliefs and traditions. Diets belonging to Indian subcontinent are called as Indian diets although there is a huge variability found in them. Dietary practices change every couple of kilometres in India the essence and basic structure of Indian cuisine remains the same.

India has a burden of metabolic diseases especially diabetes. STARCH study shows that Indian diets are rich in carbohydrates (70 % of carbohydrates) and relatively poor in protein. According to a survey titled 'PRODIGY' (Protein consumption in diets of adult Indian survey) as many as 91 % vegetarians were found to be deficient in their protein intake. In terms of carbohydrates sources, a substantial decline in the cost of cereals, sugar jaggery has been observed. Greater demand, reasonable pricing, modern technology leads to increase in the availability and accessibility of the carbohydrate sources. Market is operated by a global rule that, if it is available it is likely to be eaten.

It has been an observation that diets of affluent population are rich in fats. Ample of research on dietary pattern among urban slum dwellers by Dr. Anoop Misra has shown that, their diets are rich in fats, especially trans fats. Therefore, it is evident that across all socioeconomic strata the only lacking macronutrient is protein. When it comes to vegetarian sources of protein, predominantly dals and pulses, its demand is low due to unaffordable pricing, cultivation difficulties and unawareness. In spite of increase the milk production in our country, surprisingly milk consumption per capita is found to be lower as compared to its production rate. Non -vegetarians also don't include flesh foods on a regular basis in their diets due to religious and cultural reasons. Financial constraints lead to inability of lower socioeconomic strata to purchase protein sources such as non-vegetarian food, milk, milk products, dals, pulses and nuts, is one of the major reasons of low protein intake in India.

On commercial level, emphasis is mainly on cereal based snack foods, both sweet and savoury e.g., various breakfast cereals and mid meal snacks such as crisps, noodles, pasta, oats products. When we look at the nutritional labels of some


Image © iStock.com/PeopleImages

products which are marketed as high protein foods e.g., milk additives and snack bars, cookies/ biscuits, their protein content is found to be nominal as compared to the requirement of the population. A data from NNMB (National Nutrition Monitoring Bureau) stated that, Indian diets in past three decades are found to be cereal based and monotonous. The important reasons of not consuming protein rich foods are financial or preferential. The two preferential reasons arelack of choices of protein sources in vegetarian diet and gastric disturbances which are associated with dals/pulses-based diet e.g., Flatulence, acidity. Significant number of Indians show lactose intolerance at various levels of milk intake, therefore, restricting consumption of dairy products. Also, milk products like khoa and paneer are preferred only in certain parts of the country. Hence it becomes difficult to incorporate them into traditional regional recipes.

Strategizing ways to increase the protein intake with a practical approach is one of the important issues to be tackled in India. Therefore, one should consider all possible angles of the spectrum. Here are some strategies which could be used to increase protein intake:

1) Awareness of protein containing foods- Non -veg foods and dairy products are commonly recognised sources of protein in India. It is imperative to create awareness about dals, pulses, nuts also being a source of protein.

2) Knowing the importance of addition of protein in every meal- In India usual breakfast options are cereal based e.g., Poha, upma, paratha, oats etc.

Working population who carry their lunch to their workplace are unable to carry protein containing foods because it becomes cumbersome to carry liquid foods such as dal, curds, buttermilk. Essentially if at all proteins are consumed, they are preferred in the dinner. One of the strategies to improve protein intake is counselling people to include protein foods in each meal of the day e.g., cup of milk or curds can be consumed with the breakfast. Instead of aloo paratha, one should have dal/paneer paratha with curd as a breakfast option. For lunch one can carry pulses like moong, matki (moth beans, chana, chawali (black eyed beans) which can be made without gravy, which are easy to carry and consume. People who eat on desk can chose moongdosa/chilla over idli/cereal based dosa. In case of sandwiches, egg/chicken/paneer/cheese options should be preferred over regular choices of sandwiches. For mid meal snack, endless cups of tea/coffee/juices can be replaced by buttermilk, nuts, unflavoured soy/almond milk, roasted chana. Vending machines which are installed for convenience and quick service at offices, schools, college canteens should keep above mentioned options instead of carbonated drinks, juices, chocolates, crisps.

3) Modification of traditional recipes- Indian diets are cereal based. Hence, an easiest strategy to increase protein intake would be to incorporate protein in these foods e.g., addition of soy atta (flour) to wheat atta to make roti or masala roti (thepla/paratha) can be made with mixture of chana flour (besan) and wheat flour instead of a single grain flour alone.

4) Make the right choice while cooking and eating- If vegetarian, cook and modify recipes with inclusion of protein rich sources e.g., instead of vegetable pulao one could add soy chunks, paneer pieces, cooked pulses (chana/rajma/sprouts) to the food preparations. For snack options one should chose thalipith (traditional Maharashtrian snack) over poha/upma. Instead of rice dosa one should opt for adai or moongdosa.

5) To reduce discomfort associated with vegetarian protein sources- Consumption of dals/ pulses can cause gastric disturbances due to the naturally present component known as resistant starch (R.S). Different cooking methods such as overnight soaking, sprouting of pulses, pressure cooking can reduce the gastric discomfort. For lactose intolerant population choosing curd over milk should be advised. Other vegan dairy sources like unflavoured soy milk, almond milk should be preferred. Various nuts should be recognised as a source of protein rather than restricting it to as a source of energy and fat.

6) Understanding alternative/substituting vegetarian protein options for non-vegetarian foods- It's a usual observation that, non- vegetarian population of India does not cook non -veg foods on daily basis due to religious and cultural reasons. People who eat non -veg foods do not prefer/enjoy vegetarian source of proteins. Therefore, habit of consuming vegetarian protein foods like dal, paneer, pulses, soy chunks on a vegetarian day in meat eating population should be inculcated.

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GOOD BUY!
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INDIA'S PROTEIN-DEFICIENCY.

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

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

NUTRELA 0% PROTEIN DEFICIENT INDIA

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

*Source: The Times of India, July 2017

7) Understanding of nutritional labels- It is important for consumers to read the label on foods carefully. Food marketing strategies could be misleading. While reading labels people have a habit of reading only fat content of the food. It is essential to change consumer's perspective to emphasize on understanding protein content of food as well.

8) Health related myths- It's a misconception in the minds of individuals that, increasing protein intake could lead to elevated levels of creatinine and uric acid. People who chose to surf health related information on internet, come across literature which discuss western data. Unlike India, in western countries primarily protein consumption is about 1 gm/ kg of body weight. Indian population has a different genotype and phenotype. Therefore, most of the information available on internet is not applicable to Indian population. Normal Indian diets are low in protein. Any increase in the protein consumption just about, if at all, achieves normalcy of protein intake (0.8 gm/ per kg of body weight).

9) Supplements- Sub segment of a specific set of population like ill, convalescing, sports enthusiast have a higher protein requirement than general population. This is difficult to achieve through a basic Indian diet. In such population inclusion of protein supplements become important. Supplements do not contain superior quality of protein than the food. It is a concentrated source of protein. It bridges the gap between intake and requirement. Therefore, selection criteria of a protein supplement and its dosage should be prescribed by professionals (doctor/nutritionist).

Protein is an essential but most neglected component of the diet. Besides improving immunity and helping in preventing metabolic diseases, it also helps to tackle sarcopenia (Low muscle mass), which is innate to Indian population. Practical strategies to increase protein intake is one of the preventive ways to tackle many health issues in India.

Selected Reading:

1) Joshi SR, Bhansali A, Bajaj S, et al. Results from a dietary survey in an Indian T2DM population: a STARCH study. BMJ Open 2014;4: e005138.

2) NNMB National Nutrition Monitoring Bureau. 1979-2002. NNMB Reports: National Institute Of Nutrition, Hyderabad

3) Sumathi Swaminathan et al, Protein intakes in India, British Journal of Nutrition (2012), 108, S50–S58

COMING EVENTS

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

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

15th India Hospitality F&B Pro Expo, Goa
August 2-4, 2018
Dr Shyama Prasad Mukherjee AC Stadium, Panaji, Goa
T: +91 9769555657
E: cmd@trinityworld.biz
W: www.trinityworld.biz

Conference on Recent Advances in Food Processing Technology
August 16-18, 2018
Indian Institute of Food Processing Technology
Thanjavur, Tamil Nadu
E: icrafpt@iifpt.edu.in

Conference on Recent Advances in Food Processing Technology
August 16-18, 2018
Indian Institute of Food Processing Technology
Thanjavur, Tamil Nadu
E: icrafpt@iifpt.edu.in

Aahar: International Food & Hospitality Fair
August 23-25, 2018
Chennai Trade Centre, Chennai
Thanjavur, Tamil Nadu
T: +91 87440 88116
E: maurya@aifpa.net

National Seminar on Indian Dairy & Food Industry
September 14-15, 2018
NDRI Grad. Association
National Dairy Research Institute, Karnal
T: +91 9812077005
E: ndri.grads@gmail.com
W: www.ndrigrads.com

Annapoorna
World of Food India 2018
Sept 27-29, 2018
Bombay Exhibition Centre, Goregaon, Mumbai
T: +91 22 2496 8000,
E: narendra.naik@ficci.com
W: www.ficci.com

IDACON 2018
Annual National Conference of Indian Dietetic Association
Sept 30- Oct 2, 2018
Brilliant Convention Centre, Indore (MP)
T: 09977600104,
E: idacon2018@gmail.com
W: www.idacon2018.com

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

NEW DEVELOPMENT CONCEPTS FOR FLAVOURS & COLOURS IN FOOD FORMULATIONS

Consumers are attracted to foods & beverages by colour and flavour. Some of the recent important innovations have been global flavours, flavour combinations and naturally derived colours. More flavouring and colouring options have been developed to meet clean label demands by consumers. There are also unusual and intriguing flavours that attract consumers interested in flavour adventure. Some of the advances in flavours & colours that can be used by product developers elevate products substantially in market are discussed below.

Natural Colours

These are no longer a trend for the future but they are current reality. Market differentiation is not 'if' natural flavours and colours are being used but 'how' they are being used in craft foods, innovative products and functional and mainstream foods to attract the attention of Millennials.

Drive for natural colours came in the end of 1990s when dairy industry in Europe began using them. Industry already had strong healthy food positioning and using natural colours was an obvious next move. Since yogurt was cold stored there were no stability issues. Europe is still leading in use of natural colours while other markets are seeing varying growth rates. Although North America was late, the move towards natural colourings is underway among small and medium sized companies as it is a means to differentiate and missing this trend could be risk for manufacturers as consumers started preferring natural and healthier foods. Another strong boost came for natural colourings in 2014-15 as consumers began demanding foods formulated without artificial ingredients. Large food manufacturers started reformulating their products. Two industries that are leading this change are cereal and confectionery as they are targeting children and they feel a need to obtains trust of parents.

Other markets are showing growth at slower rates. About 65% of consumers in Asia are worried about artificial colours in their food. In Asia and Latin America the cost of formulating with natural colours is a limitation in some areas. Although there are many shades of red, purple, brown, orange and yellow, the choice is limited for naturally derived blue and green colours. Although blue is not common colour found in foods, it is a key colour in confectionery and a very convenient tool when combined with yellow for offering vibrant green colours. US FDA has approved blue spirulina extract opening new possibilities for developing natural blue and green shades in confections, pastry decorations, and frozen desserts and ice creams.

It is a bit trickier for developing natural green colouring. Main option for green is combination of blue spirulina with yellow pigment from turmeric or carotenoids. European manufacturers use chlorophyll and copper chlorophyllin which are not permitted in the US. European Food Safety Authority has published a report stating lack of safety data of copper chlorophyllin so some manufacturers are moving away from this pigment in favour of spirulina based or chlorophyll from spinach so not only they are fully compliant with natural policy but also their safety is not in question.

Going Beyond Obvious

One of the ways to catch consumer attention is to use flavour and colour foods in new and intriguing ways. Newer trends like health and wellness, permissible indulgence and hybrid/mash-ups are new product development drivers. Some of the creative concepts may be Root Vegetable Candy (gummy candies flavoured with beet flavour and purple sweet potato flavour); Faux-Ciutto, Apple, & Brie Stuffed French Toast (formulated with prosciutto type, French toast type and apple pie type flavours); Kansas City Style Barbecue Pulled Pork Flavoured Sticky Buns; and Cheese Ice Cream with Pickled Beet Variegate.

Some more creative suggestions are mint chocolate cups filled with either strawberry basil-flavoured or melon cucumber mint-flavoured ganache that employs natural colours derived from beetroot and spirulina blue. Some more concepts are unfamiliar flavours in a recognisable format. Yogurt and pudding for example flavoured with black sapote which is a fruit with chocolate flavour. Ice cream featured with flavour based on Chinese liquor called baijiu, a clear spirit made from fermented sorghum with light fruity and slightly sour flavour notes. Jam with nori, a type of edible seaweed with flavour profile similar to Japanese seven-spice blend.

Gourmet & Delicacy Flavours

Gourmet ingredients can give an edge over competition and drive consumer interest but they would be expensive (truffles) or difficult to source. Alternative would be to use flavouring with profiles of these ingredients in a cost effective way. Some flavours in the market are vanilla white & black truffles, saffron, wine, jamónIbérico, balsamic vinegar etc. The most unusual is bird's nest soup flavour. This is a delicacy enjoyed in China and parts of South Eastern Asia. Some prepare this with rock sugar to create sweet dessert. It has a briny, slightly earthy taste.

Heat & Spice

Flavour interest in foods and beverages could be enhanced by a little heat or spice. Popular flavour interests are chilli peppers from around the globe. Consumers like to challenge their taste buds with hotter items and many chillies from around the world such as Aleppo, gochugaru, and Peruvian ají as well as poblano, habanero and guajillo are becoming quite popular as consumer tastes and tolerance to heat from spices keeps growing.

Sriracha from China and gochujang from Korea are continuing to be popular with some of the other trending being shichimitogarashi from Japan, Trinidad moruga scorpion pepper, Hatch from the US. Hot profiles are liked as consumers become aware what they are eating and more adventurous. Finding regional peppers and adding to familiar dishes like mashed potatoes is new eating experience. Heat profile should not just burn taste buds but also deliver flavour, mouthfeel, umami and kokumi etc.

Fruits and Vegetables for Colours & Flavours

Fruits and vegetable concentrates are attractive options to colour and flavour many foods in a natural clean label way. Also a little bit of concentrate goes a long way especially when developer is working with a tight cost target. At just 1% in certain formulas, vegetable concentrates like red beet, purple carrot and pumpkin will provide brilliant colour. Fruit juice concentrates are added at similar levels to produce fruit flavour and give authenticity to a label.

Manufacturing these ingredients is fairly straightforward. Starting with raw fruit or vegetable grinding, they are screened to separate unwanted solids. Juice is pasteurised and sometimes filtered. Juice is then gently evaporated until brix of about 40 to 70o is obtained. These are stored frozen with a shelf life of about 2 years.

Because concentrates are completely natural, heat, light and oxygen can degrade them so processing and packaging must be considered before choosing to use for natural colouring. Red beet juice concentrate works well in dairy applications like yogurt and ice cream, but colour compounds are susceptible to browning in a baked application. It is possible to stabilise these colour pigments in process, however, it is important to let supplier know what formulation is intended so they can provide right ingredients for the application.

With fruits, watermelon is popular particularly concentrate without the rind and red in colour. It can be sweet and savoury which is added to sauces, desserts and even as natural colour in some baked snacks. Custom blends like strawberry-watermelon, watermelon-lime and even cucumber-watermelon seem to be the trend. Pumpkin, butternut squash and warm flavours like plum and cranberry have also gained customers' attention. Manufacturers are using different fruits and vegetables to add twist to foods and beverages and customers are also adventurous today and companies are responding. Formulators are getting creative by adding cauliflower in tropical fruit blends, masking kale juice concentrate with red berry fruits and even mixing sweet and savoury with delicious results.

Cold Brew Coffee: Hot Flavour Trend

Cold brew coffee has been around for centuries. Coffee houses have used it to craft signature flavour profiles to set them apart from competition. Its popularity in the US has exploded recently with retail sales of RTD cold brew coffee grew 115% last year reaching $ 7.9 million in sales. It is now moving mainstream with chain coffee houses are moving cold brew to chain-wide execution, while donut shop chains testing metro areas.

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Flavour of cold brew coffee differs from traditional brewed coffee, mainly due to how it is prepared (steeping at room temperature for at least 10 hours). Using time instead of heat gives gentle extraction of cold brew yielding an authentic coffee flavour that is perfectly balanced, distinctively smooth and subtly sweet. Hence it is more often enjoyed pure black or lightly sweetened. Cold brew extracts allow product developers to enhance the flavour of black cold brew coffee applications or add flavour of cold brew coffee to other applications like ice cream and dairy based frappes, iced coffees and lattes. Extracts are used in bars as well and is used to make refreshing mock-tails with flavoured tonic water, deliciously decadent drinks with sweetened condensed milk and fruit, and even chasers for bourbon and other popular alcoholic beverages.

Demand Surge in Clean Label

These demands are changing ingredients environment with more ingredient manufacturers expanding their offerings of ingredients that are naturally derived or minimally processed, including flavourings and colourings. Consumers demand transparency and clean products. Clean label movement has firmly entrenched in generations and all walks of life. Consumers consider clean meaning healthy. Consumer perception of healthy does not involve calories and fat any more but the recognisable ingredients. Consumers are concerned about health and are expecting it from food and beverages.

Red Colouring Provides Heat Stability

Natural colours are in vogue and manufacturers are reformulating at the behest of consumers to remain competitive. However, use of natural colours is not without challenges. Light, oxygen, heat, processing, pH and time can degrade colours from natural sources. One company has developed a red colour from beets but unlike standard beet-based colours which are prone to browning during heat processing, this is sourced from beets using proprietary natural colour solvent-free technology that increases heat stability of the final ingredient. It gives varying shades of red to foods such as neutral pH baked goods and dry products like cookies, extruded cereal, red licorice, and tortilla chips while remaining heat stable. It can be listed as vegetable juice or beet thus becoming label-friendly. Other natural ingredients like cocoa powder or turmeric could be added to create darker or lighter shades of red.

Exotic Flavours from Around the World

Global and regional flavours continue to make impact on flavour landscape with influences from Middle Eastern and African cuisines with names like harissa, dukkah or berbere cropping up as chefs are looking for inspiration for their menus. Cuisines have become topic of discussion in popular culture and there are food-centric content on social media and food-focused magazines and TV shows driving its popularity.

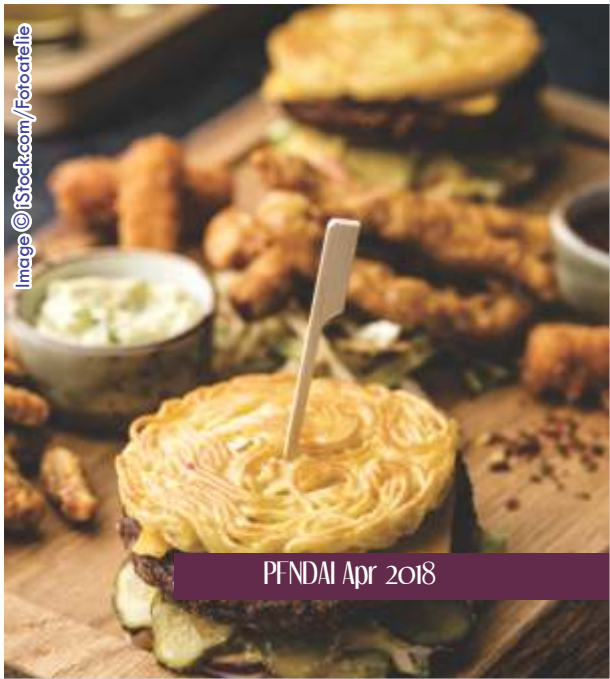
Consumers are exhibiting growing appreciation of worldly experiences, and households are becoming more multicultural. So they have new curiosity and desire for enriched eating experiences. There is more interest for new flavours and flavour combinations and an readiness to try exotic flavours and willingness to try ethnic and fusion cuisine.

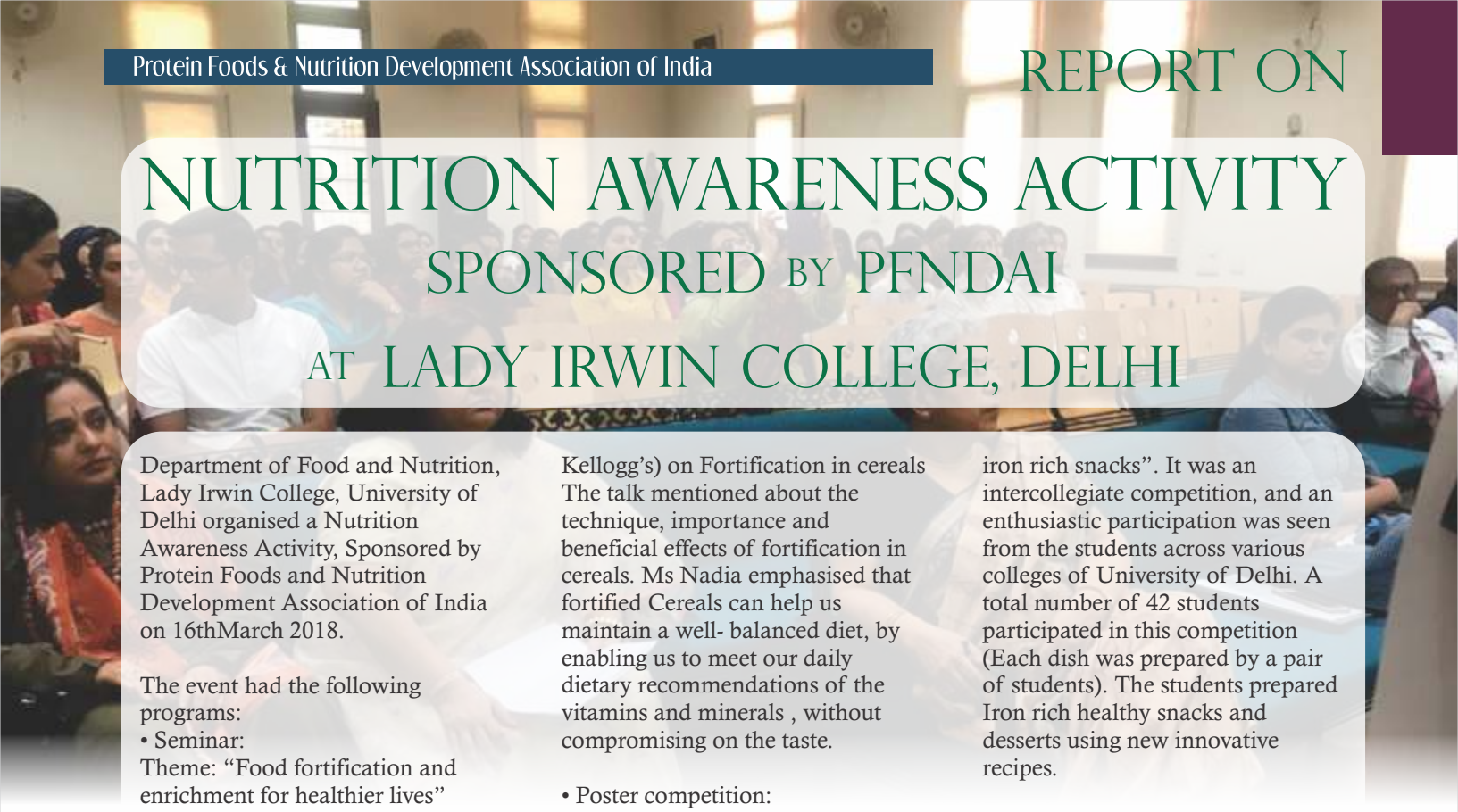
This provides an opportunity to use flavour to capture the attention of consumers, whether they have an adventurous palate or not. There is a trend of flavour fusion and it is impossible to go wrong when creating new products. Consumers look for adventure when they eat, and products using creative ways of flavours will get consumer attention.

Foods and ingredients from different global cuisines are being combined in interesting ways. There have been Korean and North African cuisines with a lot of fusion mash-up flavours. There are fusions of different cultures as well as different ethnic flavours being combined in product bases for new experiences. This allows immense scope for creative skills to combine flavour and ingredients from Mediterranean and Latin or Mediterranean with African cuisine. This approach not only delivers authentic flavour profiles consumers seek such as sweet/heat and sweet/savoury, but also completely novel experiences like spicy nacho cheese donuts or macaroni crust pizza.

Another big influence of global flavours is the street food and food truck scene. This phenomenon has provided opportunity to enjoy kimchee tachos, poutine, and ramen burgers where the bun is made of noodles. These products are appearing in restaurants and supermarkets from where it will move to mass market.

Condensed from article “Nine Flavor and Color Developments for Product Formulators” by Karen Nachay in Food Technology issue November 2016





REPORT ON NUTRITION AWARENESS ACTIVITY SPONSORED BY PFNDAI AT LADY IRWIN COLLEGE, DELHI

Department of Food and Nutrition, Lady Irwin College, University of Delhi organised a Nutrition Awareness Activity, Sponsored by Protein Foods and Nutrition Development Association of India on 16thMarch 2018.

The event had the following programs:

• Seminar:

Theme: "Food fortification and enrichment for healthier lives" supported by Mother Diary, AAK Kamani and Kelloggs. Following were the speakers:

Dr.TSR Murali (Chief R&D officer, Mother Diary Fruit & Veg Pvt. Ltd.) on Fortification of Milk

The talk referred the significance and importance of fortifying the milk with vitamins A & D. Dr.Murali also mentioned, as India faces immense deficiency in these vitamins, milk is a perfect choice for fortification, for consumers to address their daily micronutrient needs.

Ms. Sonali Rawool (Sr. R&D executive (Nutritionist), AAK Kamani) on Fortification of Oils and Fats

The talk presented a global and Indian Scenario of Vitamins A and D deficiency and ways of combating micronutrient deficiencies. Ms. Sonali also discussed the studies of fortified oil and vitamin stability, the use of omega 3 products like flaxseed oil for fortification of different products.

Ms. Nadia Merchant (Nutritionist, Kellogg's) on Fortification in cereals

The talk mentioned about the technique, importance and beneficial effects of fortification in cereals. Ms Nadia emphasised that fortified Cereals can help us maintain a well- balanced diet, by enabling us to meet our daily dietary recommendations of the vitamins and minerals , without compromising on the taste.

• Poster competition:

Theme: "Lifestyle and dietary modifications for prevention of obesity". It was an intercollegiate competition and 40entries were received from various colleges across University of Delhi for Poster Competition. The following Colleges of University of Delhi, participated in the event: Bhagini Nivedita College, Aditi Mahavidyala, Institute of Home Economics, Lady Irwin College and Shyama Prasad Mukherjee College

The Poster session was judged by the following team - members: Ms. Sonali Rawool, Sr. R&D executive (Nutritionist), AAK Kamani, Dr. Lalita Verma, Assistant Prof, Dept of Food and Nutrition, Lady Irwin College & Dr. Swati Jain, Assistant Prof, Dept of Food and Nutrition, Lady Irwin College

The First 3 entries of the Poster Session were won by: Ms. Shikha, Shyama Prasad Mukherjee College, Ms. Nandini Chopra, Lady Irwin College & Ms. Bharti Panwar, Bhagini Nivedita College

• Recipe competition:

Theme: "Balanced energy protein, iron rich snacks". It was an intercollegiate competition, and an enthusiastic participation was seen from the students across various colleges of University of Delhi. A total number of 42 students participated in this competition (Each dish was prepared by a pair of students). The students prepared Iron rich healthy snacks and desserts using new innovative recipes.

The following Colleges of Delhi participated in the competition: Bhagini Nivedita College, Institute of Hotel Management, Pusa, Aditi Mahavidyala, Institute of Home Economics, Lady Irwin College, Shyama Prasad Mukherjee College

The Recipe competition was judged by the following team- members: Dr. Neena Bhatia, Dr. Pooja Raizada, and Dr.Pulkit Mathur, all from Dept. of Food and Nutrition, Lady Irwin College

Out of the 21 entries received or recipe competition, the first 3 entries were won by: Ms. Mehak Surana and Palak Mahajan, Institute of Home Economics, Ms. Kiran and Manisha, Aditi Mahavidyalaya, Ms. Nisha and Poonam , Shyama Prasad Mukherjee College.

Appreciation Awards were given to Ms. Chhavi Malik and Ashmeer Kaur, Shyama Prasad Mukherjee College & Ms. Shreyasi Adhikari and Kriti Sisodia, Aditi Mahavidyalaya

Dr. Bhatia Thanking Ms. Rawool

Dr. Sidhu Thanking Dr. Murali

Judging Posters

Ms. Nadiya Merchant

Audience

JudgingRecipes

Poster

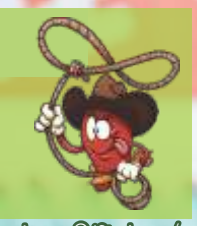
Poster


Recipe nutri canapes


Recipe loha tokri


Recipe date pancakes

Poster



REGULATORY ROUND UP

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

Dear Readers

This is the 17thRound Up, and I have received no feedback from you. This could mean either the column is good and useful or nobody is reading it. I continue to (and hopefully am right) tick the former. I look forward to bouquets and brickbats as that is the only way for continual improvement.

In the present round up, I have tried to incorporate links to Bureau of Indian Standards which puts on its website standards under revision for comments. BIS standards are mandatory for some of the food products like Packaged Drinking Water, Milk Powder, Infant Foods, Plastics in contact with food, etc.

BIS has published thousands of standards and I have found them very useful in improving my understanding especially in the areas of sensory evaluation, inspection and testing, statistical methods, etc.

Standards

Draft notification related to Drinking Water offered or sold through water vending machine. The draft regulation requires that water offered or sold through a vending machine must comply with standards of Packaged Drinking Water of Food Safety and Standards (Food Products Standards and Food Additives) Regulation 2011. This means water offered free of cost in any establishment through a vending machine must comply with the standards. However, there is no need BIS certification. Please have a look at the water vending machine in your office.

Draft amendments in the existing standards of ice lollies. Permits the use of spices and condiments

FSSAI has issued a directive regarding statutory warnings on alcoholic beverages to prevent drunken driving, etc.

An order permitting the rectification of certain labelling deficiencies in imported products

The site https://services.bis.gov.in:8071/php/BIS/StandardsFormulationV2/pow.01.php lists all the standards in Food and Agriculture (FAD) committees. The site also lists standards under revision and revised and published. Similarly, the site https://services.bis.gov.in:8071/php/BIS/StandardsFormulationV2/pow.01.php is for plastic materials including those in contact with foods.

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

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RESEARCH IN HEALTH & NUTRITION

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What causes caffeine in the body?

Food News LATAM 05 FEBRUARY 2018

Caffeine along with theophylline and theobromine are three methylxanthines present in coffee, being caffeine or 1,3,7-trimethylxanthin, the most consumed psychoactive substance in the world.

According to its chemical definition, it belongs to the family of alkaloids. This alkaloid acts as a stimulant of the central nervous system, stimulating the waking state and resistance to fatigue, and the heart, causing vasoconstriction.

It can be found naturally in other products such as tea, cocoa or chocolate, and can also be added to certain soft drinks. There are drugs that can be purchased with or without a prescription (OTC: "over the counter" means without a prescription) that contain caffeine.

The Food and Drug Administration (FDA) of the United States already classified in 1958 the caffeine as substance generally recognized as safe and in 1987 reaffirmed its position in the sense that a normal intake of caffeine, in the order of 300 mg / day in adults healthy, does not imply health risks. This amount is equivalent to 3 or 4 cups a day, taking into account that an espresso coffee contains 7 grams of coffee, which is equivalent to approximately 40 mg of caffeine.

Once ingested the drink that contains caffeine its absorption occurs in the intestinal tract is a rapid process that is completed after about 45 minutes from ingestion. The consumption of a dose of 5-8 mg of caffeine per kilo of body mass will generate a concentration of caffeine in blood of 8-10 mg / l reaching the maximum concentration between 15 and 120 minutes after ingestion as a function of weight and age of the person. With regard to the half-life, this will be 2.5 to 4.5 hours, being longer the older the person is. In the case of smokers, the duration of caffeine in the blood is reduced by 30% - 50%, while it doubles in women who take oral contraceptives and increases up to 15 hours during the last trimester of pregnancy.

After rapid absorption, the body metabolizes caffeine by 97%, estimating that after metabolizing in the liver, 80% is converted to paraxanthine, and 16% in theobromine and theophylline. In the urine you can find up to a dozen metabolites of caffeine, but no more than 3% of the caffeine consumed.

Caffeine produces effects that will depend on the individual characteristics of each person. Caffeine stimulates the central nervous system (reduces the feeling of tiredness and fatigue and on the other hand increases alertness and improves concentration), has direct effects on the caliber of blood vessels (also acts on the cardiovascular, respiratory and gastrointestinal), has various effects on the renal system (97% of the coffee content is water so that although caffeine is slightly diuretic, coffee is an important source of water), it can improve the absorption of some analgesics and increase their effects (it is especially effective in mitigating migraines and even preventing them).

The Coffee and Health Information Center (CICAS) is a scientific entity that arises with the aim of disseminating rigorous and novel information about coffee and the beneficial effects that its moderate consumption has for our organism.

How do crash diets affect your heart? Study investigates

Medical News Today 2 February 2018
By Ana Sandoiu

New research examines the impact of so-called crash diets, also known as very low-calorie diets, on heart function. The findings call for more careful cardiac monitoring in people trying to lose weight. Crash diets are very appealing to those wishing to lose weight fast – and that is most people.

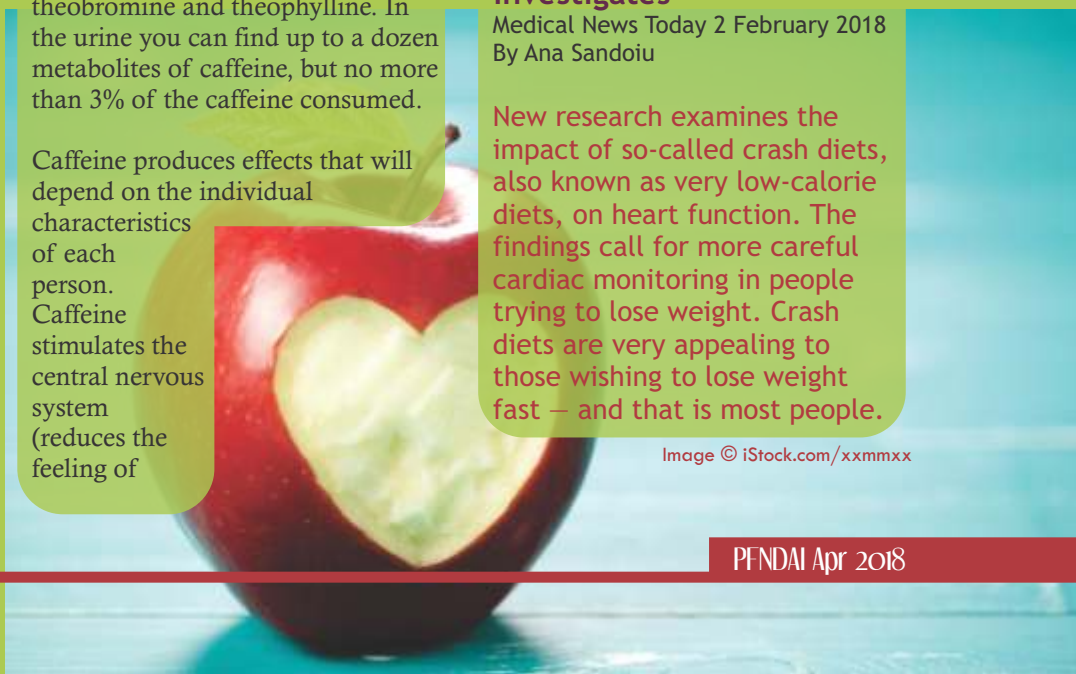

Image © iStock.com/xxmmxx

Are they healthful? And how do they affect the body? The National Institutes of Health (NIH) warn that they could be dangerous, depriving the body of essential nutrients, and that these effects are particularly worrisome in children and teenagers. Other adverse health effects that scientists have warned about include the slowing down of the metabolism, the weakening of the immune system, and the increasing chances of dehydration and arrhythmia. Now, new research — presented at this year's CMR conference, held in Barcelona, Spain — looks specifically at the effects of crash diets on heart health. Dr. Jennifer Rayner, who is a clinical research fellow in the Oxford Centre for Magnetic Resonance at the University of Oxford in the United Kingdom, is the lead author of the new study.

She explains the motivation for the research and offers more context around this dieting practice, saying, "Crash diets, also called meal replacement programmes, have become increasingly fashionable in the past few years." "These diets have a very low-calorie content of 600 to 800 [calories] per day and can be effective for losing weight, reducing blood pressure, and reversing diabetes," Dr. Rayner adds. "But the effects on the heart have not been studied until now," she says. So, Dr. Rayner and team used MRI to examine the impact of crash diets on fat distribution and the good functioning of the heart.

Crash diets: The good and the bad
To this end, the researchers recruited 21 participants who were obese and aged 52, on average. For 8 weeks, they were fed a diet restricted to 600–800 calories per day. Dr. Rayner and her colleagues performed MRI scans at the beginning of the study, 1 week later, and at the end of the study. After just a week, body fat levels had decreased. Specifically: the amount of total body fat fell by an average of 6 percentage points; visceral fat, or the fat around our internal organs, fell by 11 percent; and liver fat decreased by 42 percent.

The crash diet revealed some important health benefits after just 1 week: better insulin resistance, and healthier levels of total cholesterol, blood sugar, and blood pressure. But surprisingly, heart fat levels rose by 44 percent. This change, write the authors, correlated with dysfunctions in the heart's ability to pump blood. By week 8, however, this returned to normal — as did heart function. In fact, these aspects of heart health improved even more than what they used to be before the diet started. "The metabolic improvements with a very low-calorie diet, such as a reduction in liver fat and reversal of diabetes, would be expected to improve heart function. Instead, heart function got worse in the first week before starting to improve." Dr. Jennifer Rayner

Caution needed in those with heart disease
Dr.Rayner explains the changes induced by the diet, saying, "The sudden drop in calories causes fat to be released from different parts of the body into the blood and be taken up by the heart muscle." "The heart muscle," she adds, "prefers to choose between fat or sugar as fuel and being swamped by fat worsens its function. After the acute period in which the body is adjusting to dramatic calorie restriction, the fat content and function of the heart improved."

As a consequence, Dr. Rayner warns about the extra caution that those with a heart condition need to take before starting a crash diet. "If you have heart problems," she says, "you need to check with your doctor before embarking on a very low-calorie diet or fasting. People with a cardiac problem could well experience more symptoms at this early time point, so the diet should be supervised." She also adds that very low-calorie diets need not be avoided altogether, as they do hold benefits. "Healthy people may not notice the change in heart function in the early stages," she says. "But caution is needed in people with heart disease."

The enzyme that frustrates your weight loss efforts

Medical News Today 8 February 2018
by Maria Cohut

Image © iStock.com/stockvisual

You've been attempting to eat smaller portions and cut down on some foods entirely, but you're still not losing as much weight as you'd like. Well, a new study says that the complex action of one enzyme may be at the core of the problem. Why do our bodies sometimes appear to turn against us, even as we do our best to stay in shape?

While we may adhere to a better diet and stop indulging in unhealthful foods, some of us will find it difficult to lose the excess weight that troubles us. The reason behind why our bodies store fatty tissue in the first place is quite straightforward and even intuitive, given the nature of human evolution, explains Dr. Alan Saltiel,

from the University of California, San Diego School of Medicine in La Jolla.

We derive energy by burning fat tissue, but sometimes, our bodies deem it necessary to curtail how much fat we burn so that we have enough "fuel" in store for later, when we may have more urgent need of it. "Human bodies are very efficient at storing energy by repressing energy expenditure to conserve it for later when you need it," Dr. Saltiel notes, adding, "This is nature's way of ensuring that you survive if a famine comes." Some of the mechanisms at play in this "fuel" storage and energy consumption system are unclear, however — particularly those related to the accumulation of excess fat that leads to obesity. The question is, what pushes the "on/off" button of fat metabolism, and when?

Dr. Saltiel and his team recently directed their attention toward the enzyme TANK-binding kinase 1 (TBK1), which they identified as key when it comes to the body's process of "deciding" how much fat to burn and how much to keep in store, especially over a period of fasting. "There are two important observations that we have linked to slowing metabolism in obesity and fasting," explains Dr. Saltiel. "We've discovered two new feedback loops that are intertwined to self-regulate the system. Think of it like your home thermostat, which senses change in temperature to turn heat off and on." The researchers' findings were reported today in the journal Cell.

Vicious metabolic cycles

Dr. Saltiel and team worked on the mouse model — using both obese and normal-weight animals — in order to study the role of TBK1 in metabolic processes. They noticed that the enzyme was implicated in two distinct processes, leading to the same result each time. The first process is kick-started by obesity-related chronic stress, and it leads to inflammation as it activates a pro-inflammatory signalling pathway called NFKB. NFKB enhances the expression of genes that "dictate" the production of enzymes thought to play a role in both inflammation and the accumulation of body fat, including the gene that encodes TBK1.

TBK1 then deactivates another enzyme, AMPK, which is largely responsible for regulating how much fat we convert into raw energy. This means that, instead of being burned, fat is able to accumulate and lead to excess weight. The TBK1 enzyme is also implicated in the mechanism that is triggered by fasting. In fasting, the body's energy levels go down. The enzyme AMPK perceives that, and to boost energy, it sends signals to fat cells to convert into energy.

However, when AMPK is activated, it also boosts the expression of the TBK1 gene, which, once again, leads to the TBK1 enzyme inhibiting the activity of AMPK. A vicious cycle thus ensues, preventing the body from burning the accumulated fat. "This feedback loop blocks energy expenditure both through inflammation and fasting," Dr. Saltiel explains. When the scientists noticed this mechanism, they looked for a way to modify it. "Energy expenditure was restored when we deleted TBK1 from fat cells [in] mice," he continues. "But something else occurred that surprised us — there was an increase in inflammation."

How can we 'restore energy balance?'

A second process with TBK1 at its core leads to an equally vicious cycle. The team also noted that, even as the NFKB pathway triggers the production of TBK1, the enzyme ends up inhibiting the NFKB pathway. TBK1 normally helps to reduce inflammation without extinguishing it, however. Instead, it keeps it at low levels — when TBK1 is inactivated, the inflammatory response is heightened without regulatory action of the enzyme.

When Dr. Saltiel and colleagues deleted the TBK1 gene in obese mice, this triggered weight loss as well as increased inflammation. To the contrary, when TBK1 was deleted in normal-weight mice, no metabolic change was observed, suggesting that cutting down on calories could also help to reduce inflammation. "Inhibiting TBK1 has the potential to restore energy balance in states of obesity by enhancing the ability to burn some fat," explains Dr. Saltiel.

While he notes that "this is probably not the only pathway accounting for energy expenditure in fasting or obesity," he adds, "This information provides new insight into how we might develop drugs that inhibit TBK1 or other enzymes involved in metabolism." Still, the researchers note that taking special drugs won't be enough for those who want to be fitter. "I think you'll probably still have to do both: reduce energy intake through diet and increase energy expenditure by blocking this compensatory reduction in burning calories," stresses Dr. Saltiel.

Consuming yogurt may reduce cardiovascular disease risk

IFT Weekly February 21, 2018

A study published in the American Journal of Hypertension suggests that higher yogurt intake is associated with lower cardiovascular disease risk among hypertensive men and women.

The study participants included more than 55,000 women (aged 30–55)

Image © iStock.com/baibaz

with high blood pressure from the Nurses' Health Study and 18,000 men (aged 40–75) who participated in the Health Professionals Follow-Up Study. In the Nurses' Health Study, participants were asked to complete a mailed 61-item questionnaire in 1980 to report usual dietary intake in the preceding year. Participants subsequently reported any interim physician-diagnosed events including myocardial infarction, stroke, and revascularization.

The researchers found that higher intakes of yogurt were associated with a 30% reduction in risk of myocardial infarction among the women and a 19% reduction in the men. There were 3,300 and 2,148 total cardiovascular disease cases (myocardial infarction, stroke, and revascularization) in for the women and men, respectively. Higher yogurt intake in women was associated with a 16% lower risk of undergoing revascularization. In both groups, participants consuming more than two servings a week of yogurt had an approximately 20% lower risk of major coronary heart disease or stroke during the follow-up period. When revascularization was added to the total cardiovascular disease outcome variable, the risk estimates were reduced for both men and women, but remained significant.

Scientists identify weight loss ripple effect

February 1, 2018 Science Daily

People who make an effort to lose weight aren't just helping themselves, they may be helping others too.

That's the finding of a new University of Connecticut study that tracked the weight loss progress of 130 couples over six months. The researchers found that when one member of a couple commits to losing weight, the chances were good the other partner would lose some weight too, even if they were not actively participating in a weight loss intervention. In the study, approximately one third of the untreated partners lost 3 percent or more of their initial body weight after six months despite not participating in any active intervention. A three percent loss of body weight is considered a measurable health benefit.

The study's lead investigator, U Conn Professor Amy Gorin, calls it a "ripple effect." "When one person changes their behaviour, the people around them change," says Gorin, a behavioural psychologist. "Whether the patient works with their healthcare provider, joins a community-based, lifestyle approach like Weight Watchers, or tries to lose weight on their own, their new healthy behaviours can benefit others in their lives."

The study, published in the peer-reviewed medical journal Obesity, also found that the rate at which couples lose weight is interlinked. In other words, if one member lost weight at a steady pace, their partner did too. Likewise, if one person struggled to lose weight, their partner also struggled. "How we change our eating and exercise habits can affect others in both positive and negative ways," says Gorin, who studies environmental and social factors influencing weight loss. "On the positive side, spouses might emulate their partner's behaviours and join them in counting calories, weighing themselves more often, and eating lower-fat foods."

Image © iStock.com/EMPPhotography

Previous findings of a weight loss ripple effect were limited to patients who participated in closely monitored, clinic-based interventions and those who had bariatric surgery. Most of those studies relied on couples self-reporting their weight loss, raising the possibility of error. The UConn study is the first to use a randomized, controlled design to look at couples' progress in less structured and widely available weight loss programs. Researchers recorded objective measurements of participants' weight and examined couples' weight loss trajectories over time.

Couples, a term used for cohabitating participants regardless of marital status, were assessed at three and six months. The couples were divided into two groups. In one group, one member of the couple was enrolled in a structured six-month weight loss program (Weight Watchers) that provided in-person counselling and online tools to assist with weight loss. In the second group, one member of the couple received a four-page handout with information on healthy eating, exercise, and weight control strategies (e.g. choosing a low-fat, low-calorie diet, portion control). Contact with those individuals stopped with the handout.

The results showed that the untreated partners of both those who tried losing weight on their own (the pamphlet recipients) and those who participated in the structured program (the Weight Watchers group) also exhibited weight loss at three and six months. The findings could add a new dimension to national guided weight loss programs that have traditionally targeted individuals seeking a healthier lifestyle.

Health care providers and organizations dedicated to healthier lifestyles may wish to consider the weight loss ripple effect in their future assessments and treatment plans, says Gorin, a professor of psychological sciences, who is also associate director of U Conn's Institute for Collaboration on Health, Intervention, and Policy (InCHIP). Whether a weight loss ripple effect might extend to other family members who share a household and not just couples remains to be seen. Gorin said that will be the focus of another study.

Vitamin A in cattle fodder is potentially protecting against cow's milk allergy

Science Dairy February 6, 2018

A real milk allergy occurs in about three to five percent of European children and more rarely in adults.

The disease is different from lactose intolerance, in which a lack of the enzyme lactase results in the inability to properly break down lactose, a sugar found in milk products. In the case of a milk allergy, the immune system itself reacts with a distinct immune response against the milk proteins. Specialized immune cells are formed which produce antibodies against the milk proteins and so trigger a potentially much more dangerous allergic reaction. A study by the interuniversity Messerli Research Institute of Vetmeduni Vienna, Meduni Vienna and the University of Vienna has now shown that the components of the cow's milk itself can help to prevent this reaction. The key is that the milk protein beta-lactoglobulin, a relevant agent for allergic reactions, literally "pockets" a metabolite of vitamin A called retinoic acid. This, however, would require cows to receive a sufficient supply of this vitamin, for example, through an abundance of green fodder.

Loading with retinoic acid transforms a potential milk allergen into a milk tolerogen

If infants become allergic to cow's milk, their bodies produce so-called Th2 lymphocytes. These are specialized immune cells that produce antibodies to fight milk proteins as part of the immune system. One of the most important of these so-called milk allergens is the protein Bos d 5. Also known as beta-lactoglobulin, it is part of a family of proteins known as the lipocalins. "This special protein family is characterized by molecular pockets that can take in small molecules like retinoic acid, which is a metabolite of vitamin A," explains first author Karin Hufnagl. "Our study showed that an 'empty' milk protein supports the activation of Th2 lymphocytes and so initiates an allergic chain reaction," says Hufnagl. However, if it, so to speak, pockets the retinoic acid, then the immune cells react moderately, without an allergic immune reaction. "An adequate loading of the milk protein could thus prevent that small children or even adults become sensitized and express a milk allergy," summarizes study leader Erika Jensen-Jarolim.

No artificial supplements: vitamin-A-enriched fodder during milk production is the key

Milk, and above all cow's milk, is an essential food product for most people. For allergy patients, however, it poses a risk. Besides causing a swelling of the mouth or the mucous membranes, other symptoms can include diarrhea or aggravated atopic dermatitis, and, in rare cases, can even induce an allergic shock. In addition, a cow's milk allergy carries the risk of other allergic diseases, such as atopic dermatitis or allergic asthma. "A sufficient supply of vitamin A to the milk producers, i.e. the cows, could counteract this effect in which a harmless food protein is converted into a milk allergen," says Hufnagl. It is uncertain, however, whether the positive effect of natural vitamin A shown in the study can also be achieved through dietary supplements. "Artificial supplementation of a diet with vitamins may not achieve the same effect as natural agents and will likely result in inadequate loading of the milk allergen. It is therefore necessary to supply vitamin A to an appropriate extent already during the keeping or feeding of the animals. This can be achieved, for example, by increasing the supply of green fodder. Corresponding follow-up studies must still be carried out, however," says Hufnagl.

Simple molecule could prevent, alleviate pre-diabetes

Pre-diabetes risk increased by coenzyme Q10 deficiency

Science Daily February 7, 2018

Levels of CoQ and the presence of insulin resistance were analysed in a range of experimental laboratory settings, mouse models and samples from humans, as part of an ambitious research collaboration conducted with the University of Sydney, Victor Chang Cardiac Research Institute, Duke University School of Medicine, Garvan Institute of Medical Research, Genentech Inc. and the University of New South Wales.

Image © iStock.com/Kagenmi

Concentrations of CoQ were found to be lower in insulin resistant body fat and muscle tissue.

When the researchers replenished CoQ, insulin resistance or pre-diabetes was reversed. Co-author Dr Daniel Fazakerley from the University of Sydney's School of Life and Environmental Science and Charles Perkins Centre said CoQ provides a vital role in converting nutrients like fat and sugar into usable energy. "CoQ is found in mitochondria, the power plants in the cells of our body, where it is required for the flow of electricity to the cell's 'motor' which is responsible for energy production," he explained.

"Energy production can also generate reactive chemical species -- often referred to as 'reactive oxygen species' or 'oxidants' -- as by-products, which can be damaging to cells. "Previous studies have shown that these oxidants can cause insulin resistance. Our study has found that lower mitochondrial CoQ enhanced oxidant formation by mitochondria. "Importantly, by replenishing CoQ in mitochondria, either in cells or in animals, we were able to restore 'normal' mitochondrial oxidants and reverse insulin resistance." Published in eLife today, the research provides a missing link in our understanding of how changes in our diet can trigger insulin resistance, said co-lead author Professor David James, Leonard P. Ullmann Chair of Metabolic Systems Biology at the University of Sydney's Charles Perkins Centre. "Eating a high fat, high sugar diet has long been known to be a major risk factor for obesity and pre-diabetes and our latest work brings us one step closer to understanding how and why," Professor James explained.

Co-lead author Professor Roland Stocker from the Victor Chang Cardiac Research Institute and the University of New South Wales added that the findings provide direction for potential future treatments for insulin resistance and pre-diabetes. "Replenishing CoQ could prove an invaluable preventive measure for insulin resistance- or pre-diabetes-linked diseases such as type 2 diabetes, cardiovascular disease, cancers and dementia," he said. "However, oral CoQ supplements may not effectively restore mitochondrial CoQ due to its low absorption," Professor Stocker explained. "This work has provided an impetus for us to find alternate means of increasing CoQ in mitochondria to treat insulin resistance and pre-diabetes. If not an external supplement, perhaps we can stimulate the body to form more of the coenzyme itself -- or find ways to prevent levels from lowering in the first place."

Turmeric compound could boost memory and mood

Medical News Today 25 January 2018
By Honor Whiteman

Not a lover of Indian food? A new study might change your mind. Researchers have found that a compound in turmeric — the spice that gives curry its golden colour — could help to improve the mood and memory of older adults.


Image © iStock.com/knape

A twice-daily dose of curcumin — found in turmeric — has been found to improve memory and mood in older adults.
Turmeric has been linked to a wealth of health benefits. Last year, for example, Medical News Today reported on a study suggesting that turmeric could help to treat pancreatic cancer, while other research claims the popular spice may help to treat stroke and Alzheimer's disease. It is turmeric's abundance of a compound called curcumin that makes it so special.

Studies have shown that curcumin is an antioxidant, meaning that it can protect our cells against damage caused by free radicals. It also has strong anti-inflammatory properties.

The new study — recently published in the American Journal of Geriatric Psychiatry — provides further evidence that curcumin can protect the brain. First study author Dr. Gary Small, of the Longevity Center at the University of California, Los Angeles, and colleagues tested the compound on 40 adults aged between 51 and 84, all of whom had mild memory problems. For a total of 18 months, the participants were randomized to one of two groups. One group took 90 milligrams of curcumin twice daily, while the other group took a placebo. The curcumin used in this study was a bioavailable form called Theracurmin, which the researchers describe as a "form of curcumin with increased intestinal endothelium penetrability."

Curcumin may have cognitive benefits
At study baseline, all participants underwent standard cognitive tests, and these were repeated every 6 months throughout the study, as well as at the end of the study. Additionally, 30 of the subjects — 15 of whom who were receiving curcumin — had positron emission tomography (PET) scans of their brain at the beginning and end of the study.

These scans were conducted in order to assess levels of the beta-amyloid and tau, which are proteins that are considered a hallmark of Alzheimer's disease. Research has suggested that an increase in levels of beta-amyloid and tau can occur up to 15 years before symptoms of Alzheimer's arise, suggesting that the proteins may be an early indicator of the disease.

Results revealed that the subjects who took curcumin twice daily demonstrated a 28 percent improvement in memory tests over the course of the study, while those who took the placebo showed no significant memory improvements. Subjects who received curcumin also experienced slight improvements in mood, unlike those who took the placebo. What is more, participants who took curcumin also had lower levels of beta-amyloid and tau in the hypothalamus and amygdala brain regions, which are regions that play key roles in memory and emotion. "These results suggest that taking this relatively safe form of curcumin could provide meaningful cognitive benefits over the years." Dr. Gary Small, first author

The side effects of curcumin were mild, the team reports; four people experienced abdominal pain and other gastrointestinal symptoms, but so did two of the placebo-treated participants. One subject who received curcumin experienced "a temporary feeling of heat and pressure in the chest." According to Dr. Small and colleagues, a follow-up study is in the pipeline. It will involve a larger number of participants, including people with mild depression and individuals with a genetic risk for Alzheimer's disease. The aim of the research will be to determine whether certain factors — such as age, the severity of cognitive problems, and the presence of Alzheimer's-related genes — might influence the effects of curcumin on mood and memory.

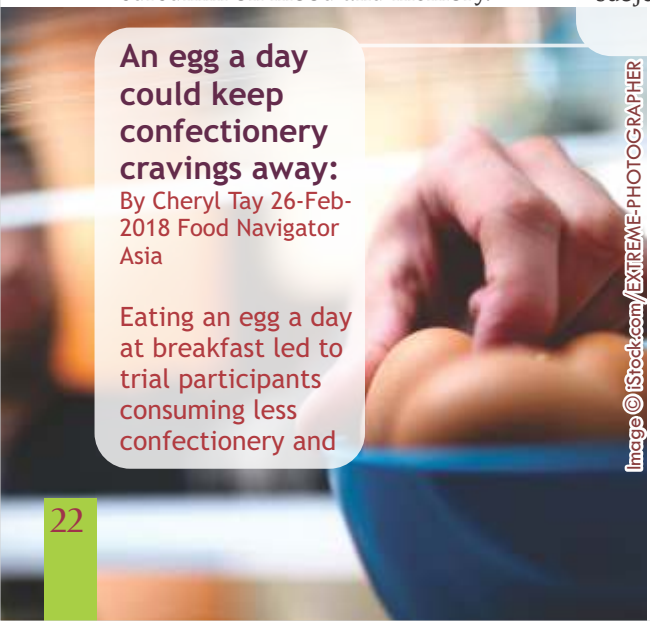

Image © iStock.com/EXTREME-PHOTOGRAPHER

An egg a day could keep confectionery cravings away:

By Cheryl Tay 26-Feb-2018 Food Navigator Asia

Eating an egg a day at breakfast led to trial participants consuming less confectionery and adhering to a more healthy overall diet. These were two key findings from a study carried out by academics at Ochanomizu University, Toyo University and food firm Kewpie.

Their intervention study sought to determine if the consumption of one egg every day would affect the blood antioxidant status and daily nutritional intakes of female Japanese university students. They recruited 14 subjects for a four-week study, wherein they were each provided a breakfast that included one boiled egg, one piece of white toast with margarine / jam, vegetable salad, low-sugar yogurt, fruit juice and black tea. Boiled eggs were obtained from the Kewpie Corp. It was observed that the frequencies of fruit and egg consumption were significantly increased due to the fruit juice and eggs provided at breakfast.

In contrast, the subjects' consumption of confectionery during the intervention was significantly lower than that at the baseline. The subjects also managed to better adhere to the food-based Japanese dietary guidelines for a healthy diet. An analysis of their fasting blood samples showed levels of malondialdehyde-modified LDL (MDA-LDL) and oxidative susceptibility of LDL— both serum oxidative stress markers — had been lowered considerably following the intervention. In addition, the subjects' serum folic acid levels showed a significant increase after the study.

Egg-cellent health

The researchers wrote that regular egg intake during breakfast could help to enhance daily nutritional status and dietary habits, as well as "ameliorate certain indices of antioxidant status in young women". They added, however, that the study's open design and small sample size may have limited the interpretation of the results. Still, they said "the study's strengths were that we investigated the dietary records in detail, and that we identified the association between the dietary intervention and blood antioxidant parameters".

They concluded that "eating one egg per day at breakfast could be good for supplying protein and maintaining one's nutritional balance, and we observed that consuming a nutritious breakfast with an egg for four weeks positively affected the dietary habits and two serum oxidative stress markers, i.e., the serum MDA-LDL level and the oxidative susceptibility of LDL, in healthy young women". "Further studies with a larger number of subjects in a randomised crossover design are needed to precisely evaluate the effect of egg consumption on health in young women."

Curcumin supplement takes the pain out of rugby tackle after-effects, finds study

By Tim Cutcliffe 0-Feb-2018 NutraIngredients USA

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A proprietary lecithin-based delivery form of curcumin significantly reduced pain and enhanced physical function in inured rugby players according to a recent study in the European Review for Medical and Pharmacological Sciences.

The small pilot-study included 50 male rugby players suffering osteo-muscular discomfort from repeated tackles, overload or chronic pain. The players were treated with either conventional pain-killing drugs, or

proprietary curcumin-based products. Both groups of players showed significant improvements versus baseline in pain perception and physical function at various intervals during the 20-day monitoring period, found the research team from various Italian institutions. The supplement group showed similar benefits to the conventional analgesics group as measured by these two main outcomes. However, tolerability in the curcumin treated group was better, showing only 4 adverse events (gastric pain) versus 16 in the standard treatment group.

Intense, high impact, physical activities are often associated with osteo-muscular conditions. Curcumin, even when administered at higher dosages, has been determined to be a safe and tolerable agent that could avoid the common gastric side effects associated with the use of many anti-inflammatory remedies that are the best standard management. Curcumin also has the ability of exerting its beneficial effect even with a short term treatment, added first author Dr. Francesco Di Pierro of Velleja Research, Milan. The product is a curcumin extract bound to phosphatidyl choline (lecithin based). This provides improved absorption and bioavailability compared with simple plant-based curcumin, which naturally occurs in turmeric.

Study Details
The supplement group was given one tablet of 1 gram every 12 hours for either 5 days (n 23) or 10 days (– 2). The analgesic drugs group received medication for 3, 5, or 10 days. The scientists measured pain perception via Visual Analog Scale (devised by Scott-Huskisson), while physical function was assessed via an arbitrary 0-10 scale (0= complete function to 10= full impairment).

Further work needed
Due to the small size of this trial and lack of control group, the scientists emphasised that further investigations should be conducted to confirm these findings. Our results should be considered preliminary and larger trials on subjects with homogeneous osteo-muscular pain conditions and with a homogenously-treated control group should be planned to better characterise the effects of curcumin, concluded Di Pierro.

Images help people who are not 'health-conscious' make better food choices

By Niamh Michail 05-Feb-2018 - Food Navigator

Health-conscious people will choose healthy foods anyway - but visual cues, rather than words, can help those who are less health-conscious to make better food choices, researchers say.

Writing in the journal Food Quality and Preference, researchers found that participants with low 'health consciousness' rated a healthy food item as more appealing and were more likely to choose that item when it was presented in picture rather than text format. "Our research suggests that one way to nudge people, especially low health conscious individuals, into making better decisions is not to highlight the healthfulness of healthy options, but rather to highlight the hedonic appeal of those healthy options."
In a real-life situation, heuristic cues that influence the way the product is perceived could be the product's brand logo or the colour of its packaging. This finding is also echoed by a 2017 study , which found that people were much more likely to choose vegetables when they were described in 'indulgent' terms more commonly associated with processed foods such as 'sweet 'n' sizzlin' – even when there was no actual difference in the way the vegetables were prepared.
"Improving the diets of less health-conscious individuals is particularly important but also challenging, given that they are not motivated to eat healthfully and associate healthy foods with less hedonic pleasure—a key driver for their food choices," write the authors.

Study details
For the first online study, the researchers recruited 193 men and women aged between 18 and 65 with a median age of 30. They were randomly assigned to one of two groups. In the first, they saw a picture of a fruit salad with its name while the second group saw the name and a description. For the second study, the researchers widened the scope, recruiting 449 adults and tested preferences for a main meal of spiralised courgette pasta with a cauliflower sauce and topped with basil. Participants rated either the picture or description based on hedonic and health criteria and indicated their consumption intentions.

The results indicate that high- and low-health conscious individuals differ in their ability to discern health-unrelated properties of healthy food items, write the authors. "Specifically, high-health-conscious individuals were able to discern the hedonic aspect of healthy food items independent of presentation format. Low HC individuals relied on visual information to discern the hedonic aspect of the food item; these individuals needed explicit cues that made the hedonic properties of healthy foods more salient."

It is not clear why the two groups react differently to presentation cues but the authors suggest it may be that high health-conscious individuals have better food knowledge given that their main motivation for food choices is consuming healthy foods. They were therefore more familiar with the healthy food item. Another mechanism at play could be the fluency of processing information; people tend to rate information that is fluent or easy to process more positively. High health conscious individuals are better at processing symbolic cues and metaphors, which is why both they found both the text and picture easy to process.

"Our research has practical implications for increasing healthy behaviours among individuals who are generally not health conscious." They suggest that public health advocates use pictures rather than text when transmitting information about healthy food behaviours and healthy food products. A previous 900-strong study by Cambridge University researchers found that the likelihood of choosing fruit after watching healthy-eating adverts only increased among 'educated' participants. Younger and less educated people were less likely to choose fruit after watching the adverts. They were also less likely to see fruit as a tasty snack.

Manipulating gut with probiotics helps restore cognitive function in mice on high-fat diet: Thai study

By Cheryl Tay 06-Feb-2018 Food Navigator Asia

The consumption of probiotics, prebiotics and synbiotics can improve cognitive function in obese and insulin-resistant individuals by manipulating the gut, say researchers in Thailand.

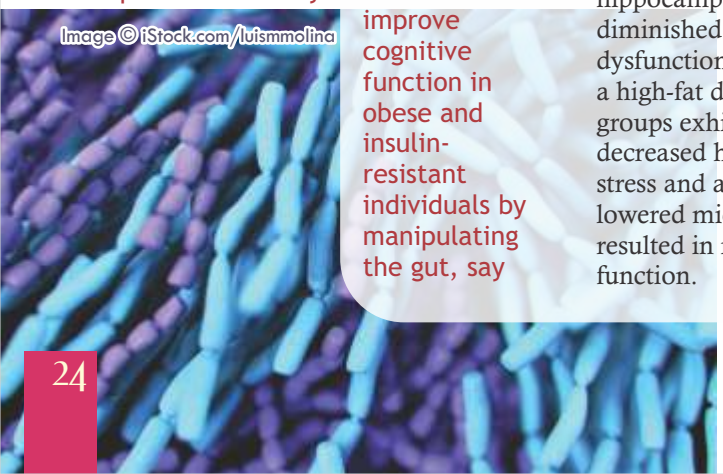
Image © iStock.com/luismmolina

A long-term high-fat diet often results in obesity, which in turn builds up insulin resistance. It can also cause cognitive decline and microglial hyperactivity. While probiotic and prebiotic intake have been shown to lower obese-insulin resistance by modifying gut microbiota, their impact along with that of synbiotics on cognitive function and microglial activity in obese-insulin resistant individuals have yet to be studied.

Researchers at Chiang Mai University sought to determine the effect of a probiotic (Lactobacillus paracasei HII01), prebiotic (Xylo-oligosaccharide), or synbiotics on male obese-insulin resistant rats on a high-fat diet. They fed male rats either a normal diet or high-fat diet for 12 weeks. In the 13th week, they divided the rats in both groups randomly into four subgroups: a control group, prebiotic group, probiotic group, and synbiotic group. The rats remained on their respective diets for another 12 weeks, after which the cognitive function of each rat was assessed, using blood and brain samples respectively to measure metabolic parameters and examine brain pathology.

What's good for the gut is good for the … brain

The researchers observed that in the treatment groups, gut and systemic inflammation and impaired peripheral insulin sensitivity caused by chronic high-fat diet intake were all alleviated. The mice on a high-fat diet also displayed enhanced hippocampal plasticity and diminished brain mitochondrial dysfunction. In addition, the rats on a high-fat diet in the treatment groups exhibited significantly decreased hippocampal oxidative stress and apoptosis, which in turn lowered microglial activation and resulted in restored cognitive function.

Less gut inflammation, more brain health

The researchers wrote that obese-insulin resistance brought on by a long-term high-fat diet leads to gut and systemic inflammation, peripheral insulin resistance, brain mitochondrial dysfunction, hippocampal apoptosis, dysplasticity and oxidative stress, and microglial morphological changes, all of which result in cognitive decline. They added that the results of the study pointed to how the consumption of probiotics, prebiotics and synbiotics could restore cognitive function in obese-insulin resistant subjects via the gut-brain axis, leading to improved hippocampal plasticity, brain mitochondrial function, and decreased microglial activation.

In conclusion, they wrote: This is the first report to show the possible link between gut microbiota modification by prebiotics, probiotics, or synbiotics, and the improvement of cognitive function in obese-insulin resistant rats. These neuroprotective effects may possibly be mediated through the attenuation of inflammation, hippocampal oxidative stress, hippocampal apoptosis, mitochondrial dysfunction as well as microglial dysfunction.

New study points to bone health benefits of annatto-derived tocotrienols, a form of vitamin E

By Adi Menayang 26-Jan-2018 NutraIngredients USA

Supplementation with annatto-derived tocotrienol decreased


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bone resorption and improved bone turnover rate in postmenopausal women more than a placebo, according to a new study.

Conducted by researchers from the Texas Tech University Health Sciences Center and the Georgia State University, the study uncovers a new benefit with which vitamin E has not been traditionally associated—bone health. "It is true that 'vitamin E' doesn't jump to mind for bone health. This is likely because the most popularized vitamin E–alpha-tocopherol–was not shown to significantly contribute to bone health," Dr. Barrie Tan, founder and president of American River Nutrition, told NutraIngredients-USA.

The amount of scientific studies surrounding tocotrienols, a form of vitamin E, is minuscule compared to the more researched, more widely available form alpha-tocopherol, and Dr. Tan has spent decades of his career in promoting the benefits of tocotrienols through speaking engagements and industry media channels to a wide variety of stakeholders and health care professionals. "While this clinical study is the first of its kind, research on tocotrienol's bone health benefits has been well-document for the past approximately 10 years in animal studies," Dr. Tan added.

Study design and results

The researchers recruited 89 postmenopausal women with a bone mineral density lower than normal—a condition known as osteopenia—for the randomized, double-blind and placebo controlled study published in Osteoporosis International. They were randomly assigned to three groups: A placebo group with 430 mg olive oil/day, a low tocotrienol group with 430 mg of 70% pure tocotrienol/day, and a high tocotrienol group with 860 mg of 70% pure tocotrienol/day.

All oils were delivered in soft gel capsules to be taken daily over 12 weeks. The tocotrienol intervention capsule is registered with an FDA Investigational New Drug number. Relative to the placebo group, tocotrienol supplementation decreased bone resorption and improved bone turnover rate six week in the study, as seen from biomarkers such as bone-specific alkaline phosphatase and osteoprotegerin. "This study showed that supplementation of tocotrienols, mainly delta-tocotrienols, suppressed bone [bone remodelling regulators]," the researchers wrote in the report. "Such osteo-protective tocotrienol's effects may be, in part, mediated by an inhibition of oxidative stress," they added.

Increasing awareness in the market place

"There are several dozen product formulations available in the US with tocotrienol, and none of them have been positioned as bone health supplements at this point," Dr. Tan said, adding that the ingredient is mostly used for cardiovascular and anti-inflammatory-positioned supplements. However, he argued that because some of these products are presented as antioxidants or to target inflammation–the two pathways that are likely involved in the mechanism for bone health benefit –they can easily be positioned as bone health supplements. "Communicating the bone health benefits of tocotrienol discovered through this first-of-a-kind clinical trial will be new to us. Tocotrienol does not act like vitamin D (a hormone) that supports calcium (a constituent mineral) in bone-building. Instead, tocotrienol, which happens to be a member of the vitamin E family, works directly with living bone cells (bone-building osteoblasts and osteoclasts involved in the breakdown of bone) to create a balance that favours build-up of bone."


Image © iStock.com/Aamulya

Researchers reveal the foods linked to lower colorectal cancer risk

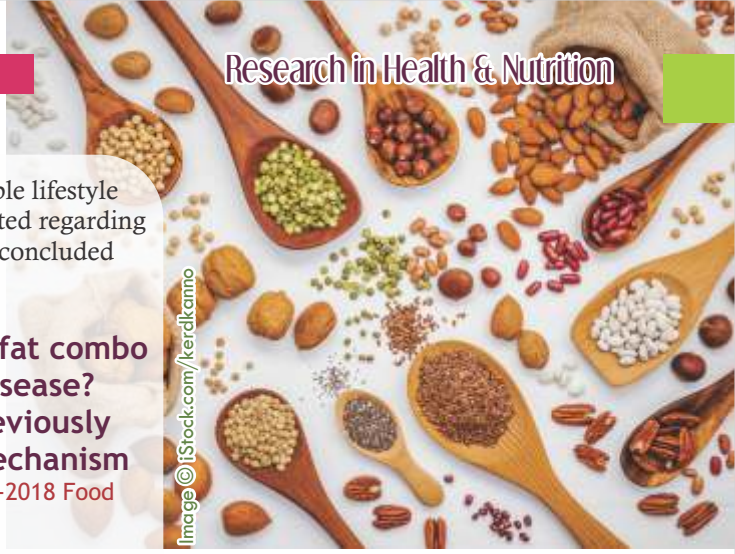
By Lester Wan 06-Feb-2018 Food Navigator Asia

Higher intake of red and processed meats has been linked to higher colorectal cancer risk, while intake of whole grains, fruit, vegetables and dairy is associated with a reduced risk.

These were the key findings of a meta-analysis, which assessed the relationship between colorectal cancer and 12 major food groups — whole grains, renewed grains, vegetables, fruit, nuts, legumes, eggs, dairy, fish, red meat, processed meat and sugar-sweetened beverages (SSBs). "Worldwide, colorectal cancer is the second most common cancer in women and the third most common cancer in men. In 2012, around 694,000 men and women died because of colorectal cancer," said the researchers.

Cancer risk reduction

The team of European researchers reported that a healthy diet characterised by high intake of fruit, vegetables, whole grains, olive oil, fish, soy, poultry, and low-fat dairy was associated with a 20-25% decreased risk of colorectal cancer, while a high intake of red and processed meat was associated with a 20-40% increased risk of colorectal cancer, with stronger associations for colon cancer compared to rectal cancer.



They also said that whole grains, fruit and vegetables are sources of minerals, and fruit contains a wide range of antioxidant vitamins, flavonoids and carotenoids, and that studies suggested a potential protective role these types of food have against colorectal cancer. In relation to dairy, they found that both dietary and supplementary calcium intake were related to a decreased risk of colorectal cancer. Dairy products also contain other beneficial components that have been suggested to inhibit colon carcinogenesis. Moreover, in colon cancer cell lines, an anti-proliferative effect was recently also observed for Lactobacillus bacteria isolated from dairy products.

On the other hand, red and processed meat contains heme iron and multiple carcinogenic chemicals. The amount of these chemicals in meat products depends on processing and preparation.

Optimal consumption & results

According to the researchers, optimal amounts of consumption of the ideal food types are: six servings per day for whole grains, six servings per day for vegetables, three servings per day for fruit, and six servings per day for dairy. Consumption of this amount together results in a 56% reduction of risk of colorectal cancer, compared to non-consumption of these foods. The highest reduction in risk of colorectal cancer in terms of servings is for dairy: Six servings per day were associated with a 30% risk reduction, compared to non-consumption of dairy.

In comparison, the researchers added: "We could further calculate that a consumption of risk-increasing foods of two servings per day of red meat and four servings per day of processed meat is associated with a 1.8-fold increased risk, compared to non-consumption." They also said that not consuming these foods at all would reduce the risk of colorectal cancer by about 44%. "Thus, a plant-based diet as a modifiable lifestyle factor should be promoted regarding colorectal prevention," concluded the researchers.

Why does a fibre-fat combo fight metabolic disease? Scientists find previously unappreciated mechanism

By Niamh Michail 24-Jan-2018 Food Navigator

Scientists have uncovered a previously unappreciated mechanism which may explain why eating dietary fibre, in particular fermentable inulin, prevents the negative health effects of a high fat diet.

A modern diet of processed foods that are high in fat and low in fibre is linked to a reduced gut microbiota, obesity and metabolic syndrome. Metabolic syndrome is the name given to a host of related health conditions including raised blood sugar levels, excess abdominal fat, high blood pressure, and blood fat disorders such as low levels of HDL cholesterol and high levels of LDL cholesterol. Manipulating dietary fibre content, particularly by adding fermentable fibre, guards against metabolic syndrome. In this study, the US researchers uncovered a new mechanism to explain why, in mice at least, adding the fermentable fibre inulin to food can restore the gut microbiota, thus protecting the mice against metabolic syndrome.

Classed as a soluble dietary fibre, inulin is a naturally occurring polysaccharide present in plants. It can be found in bananas, onion, garlic and artichoke but most commercially-produced inulin comes from chicory. It is sometimes classed as a prebiotic - food for probiotic bacteria in the gut microbiome. Contrary to previous studies, which pointed to role for inulin-derived short-chain fatty acids (SCFAs) in reducing inflammation, the team of researchers led by Dr. Andrew Gewirt, professor in the Institute for Biomedical Sciences at Georgia State University, found that inulin may not require SCFAs.

Instead, inulin-promoted bacteria, increased the production of intestinal epithelial cells and restored the expression of the protein interleukin-22 (IL-22). The induction of IL-22 expression is what forties the intestine, thus reducing microbiota encroachment and ameliorating metabolic syndrome". These results contribute to the understanding of the mechanisms that underlie diet-induced obesity and offer insight into how fermentable fibres might promote better health, said Gewirt.

According to the authors, this was a previously unappreciated means" in how fibre is improves colon health. The finding has importance because, while the health benefits of fermentable inulin are known, it is difficult to eat the amount needed for these benefits because of the logistical considerations and adverse effects, especially bloating and flatulence". This is why it is important to define the mechanisms by which fermentable fibre protects against metabolic syndrome, they write.

Study

Over a four-week period, the researchers gave mice either a grain-based diet, a high-fat-low fibre diet or a high-fat-high fibre diet (with either fermentable inulin fibre or

insoluble cellulose fibre). They found that mice on the inulin-enriched diet had levels low of weight gain and a reduction in the size of fat cells. Inulin also markedly lowered cholesterol levels and prevented abnormal blood sugar levels (dysglycemia). Insoluble cellulose fibre on obesity and dysglycemia were more modest. The high fat-diet supplemented with inulin also helped restore the gut microbiota, although not to the levels of the mice on the grain-diet.

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Eating less not the best way to lose weight, study shows

Medical News Today 26 January 2018
By Ana Sandoiu

New research, published in the journal Appetite, suggests that, when it comes to dieting, it's not how much you eat — but rather, what you eat — that influences calorie intake the most.

Faris Zuraikat, a graduate student in the Department of Nutritional Sciences at Pennsylvania State University, led the new study, which follows up from a previous 1-year randomized controlled trial that investigated how different food portions influenced weight loss. The former trial aimed to explore the so-called "portion size effect," which occurs when people are served bigger portions than what they originally wanted but end up eating more nonetheless. To this end, the previous trial trained the participants to gain more control over their portions, presenting them with useful strategies for portion size management.

In this new trial study, the researchers wanted to see if people who had been previously trained to manage their portions would respond differently to increasing portion sizes by comparison with untrained people. As the study's first author explains, the researchers "[w]ere also interested in whether those untrained individuals with overweight and obesity or normal weight differed in their response."

Calorie intake vs. portion size effect

To find out, the researchers gathered three groups of women: 34 women who were overweight and had not participated in the previous trial, 29 healthy "control" women who had a regular weight and who had also not participated in the trial, and finally, 39 women with overweight and obesity who had taken part in the portion-controlling trial. During the study, all women were served the same foods once a week for 4 weeks, but the size of their food increased in a random order.

Additionally — and significantly — the calorie content of the food served also varied. The foods ranged from high-calorie ones, such as garlic bread, to low-calorie foods, such as salads. The study revealed that when given bigger portions, the women across all three groups consumed more food. However, the participants who had been trained in portion control in the previous trial consumed fewer calories than the untrained participants. "The lower energy intake of trained participants was attributable to consuming meals with a greater proportion of lower-[energy density] foods than controls," write the authors.

"All the groups were served the same meals, but their food choices differed," explains the study's lead author. "The participants who went through the training consumed more of the lower calorie-dense foods and less of the higher calorie-dense foods than the untrained controls. Consequently, trained participants' calorie intake was less than that of the control groups, whose intake didn't differ by weight status."

Why choosing low-calorie food is important

The study's lead researcher explains the significance of the findings, saying, "The results show that choosing healthy, lower-calorie-dense foods was more effective and more sustainable than just trying to resist large portions of higher calorie options." "If you choose high-calorie-dense foods but restrict the amount that you're eating, portions will be too small, and you're likely to get hungry," Zuraikat goes on. Barbara Rolls, a professor of Nutritional Sciences at Penn State and a co-author on the study, also chimes in. "The study supports the idea that eating less of the higher-calorie-dense foods and more of the nutritious, lower-calorie-dense foods can help to manage hunger while consuming fewer calories."

"You still have a full plate," she adds, "but you're changing the proportions of the different types of foods." The findings are particularly significant given that people who want to lose weight are often told that eating "a bit of everything" helps, as long as the food is consumed in moderation. On the contrary, the new research seems to suggest that opting for more nutritious, low-calorie foods is far more important than trying to eat less.

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Arjuna ups sustainability credentials by improving nitric oxide booster production process

05 Feb 2018 Nutrition Insight

Arjuna Natural Extracts has implemented a sustainable approach to meet growing demand for its nitric oxide booster, OxyStorm, in the US and Europe. The company reports it is now able to guarantee a sustainable, nitrate-enriched, all-natural Amaranthus extract supply for boosting nitric oxide levels.

This natural source of nitrates is sugar-free and can be applied to a wide range of applications and standardized high nitrate content of 9 percent. Clinical research has demonstrated a crucial role played by nitric oxide in cardiovascular health. Nitric oxide deficiency, is the first step for the emergence of many disease states of the cardiovascular and related systems, including heart failure, hypertension, dyslipidemia, insulin resistance, diabetes mellitus, hyperhomocysteinemia, inflammation and diseases due to smoking. Results from a clinical study published in the September 2016 European Journal of Applied Physiology confirm that dietary supplementation of OxyStorm generates a significant boost in plasma nitrate, ultimately increasing nitric oxide levels in the body.

To create its high-nitrate OxyStorm, Arjuna devoted large tracts of land in South India solely to amaranthus cultivation. Harvesting amaranth requires precise agriculture proficiency and care. The company's established association with local farmers in turn supports the community and secures its income. "Arjuna identified an experienced community of local farmers and helped them develop and maintain sustainable farming practices," says Benny Antony, PhD, Joint Managing Director. "We trained them to adopt the best practices, focusing on the minutest details, while employing advanced agricultural methods. This allows the farmers to attain the maximum yield of high-quality amaranthus, without using any chemicals."

The quality of amaranthus is significantly influenced by the climate as well. Arjuna works closely with the farmers to harvest amaranthus at the peak time, following which the crop undergoes a controlled, proprietary process before further extraction. The nutraceutical compounds are kept intact through every segment of the patent-pending manufacturing and purification process. All processing is performed at Arjuna's dedicated facility, under complete supervision by Arjuna's quality control department, and powered exclusively by eco-friendly solar energy. "OxyStorm has gained a good reputation in the US and other countries for its health benefits and high nitrate content," notes Chase Johnston, Director of US Operations for Arjuna. "It is suitable for a comprehensive portfolio of food, beverage, and supplement applications, including health beverages, beverage 'shots,' nutrition bars and supplements."

Protein supplements "significantly" benefit muscle mass

09 Feb 2018 Nutrition Insight

Dietary protein supplements do significantly improve muscle strength and size when taken by healthy adults who lift weights, say McMaster scientists who analyzed dozens of research studies.

According to the researchers, their analysis puts to rest any debate on whether or not such supplementation is effective. However, the effects are not as big as some supplement companies would have you believe, cautions the senior author on the paper, Stuart Phillips, a professor of kinesiology at McMaster University. The study, published online in the British Journal of Sports Medicine, also suggests the benefits of protein supplements increase with resistance training experience but become less effective with older adults, pointing to a need for greater supplementation to reach optimal results as we age.

Additionally, there is a limit to the amount of protein that is beneficial, plateauing at roughly 1.6 grams of dietary protein per kilogram of body weight per day. The study is the largest meta-analysis of its kind and researchers say it provides clarity after conflicting results from previous studies.

Researchers combed through

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thousands of studies searching for specific criteria, including randomized controlled trials, human participants and study durations of at least six weeks. In all, they analyzed 49 high-quality individual studies with 1863 participants. In addition to muscle mass and strength gains, they also found that: the effectiveness of protein supplementation during weight training is equal in women, not affected by the protein source-a whey protein supplement versus a steak, for example-nor the time of day the protein is taken, such as at regular meal times versus post-workout. One thing the researchers noted was that with increasing age there was a reduced effectiveness of protein supplementation.

Robert Morton, lead author and a Ph.D. candidate at McMaster University, explains: "Older individuals are less responsive to protein. So a given dose of protein stimulates growth less in older people. The general thought now is that we should be providing more protein." "I think the next step would be to find out why protein supplementation is less effective in older individuals, as well as to challenge the current recommendation of 0.8 grams of protein per kilogram body weight per day. We found that double that was effective." "Protein intake is critical for muscle health, and there is mounting research that suggests the recommended dietary allowance, of 0.8 g protein per kg per days, is too low," says Morton. "We will see more and more research, especially as our populations age, challenging that number."

Clear definition and regulations needed to tap into nutraceuticals' potential: review

13 Feb 2018 Nutrition Insight

Nutraceuticals with health benefits substantiated by clinical data can be powerful tools to prevent and treat medical conditions, especially in individuals who may not yet be eligible for conventional pharmaceutical drugs. However, there is a clear need for clear regulations to ensure their safety. This is according to a review published in the British Journal of Clinical Pharmacology, which further proposes a clear definition for this type of product.

There is a growing demand for nutraceuticals, which currently reside in the grey area between pharmaceuticals and food and are thought to provide medical or health benefits "beyond the diet, but before the drugs." Currently, nutraceuticals do not have a specific definition distinct from those of other food-derived categories, e.g., food supplements, herbal products, pre- and probiotics, functional foods and fortified foods. However, the review by a team led by Ettore Novellino, Ph.D., and Antonello Santini, Ph.D., of the University of Napoli Federico II in Italy, finds that it is of utmost importance to have an unequivocal definition of nutraceuticals, to conduct clinical studies on their safety and efficacy, and to have standardized regulations for their use.

The authors propose the following definition for nutraceuticals: the phytocomplex of a vegetable or the pool of secondary metabolites from an animal. Both are concentrated and administered in a pharmaceutical form and are capable of providing beneficial health effects, including the prevention and/or treatment of a disease. "Nutraceuticals, in the collective imagination of the consumer, tend to be confused and wrongly identified with many other products available on the market on the basis of potential health benefits," says Dr. Novellino. "An evaluation of the safety, the mechanism of action, and the effectiveness of nutraceuticals – and substantiating this with clinical data – is the central point that differentiates nutraceuticals from food supplements."
Dr. Santini adds that the growing demand and interest in nutraceuticals justifies the need for a restructuring of the entire regulatory framework that differentiates nutraceuticals from food supplements. "We propose a regulatory system that is similar to the one used for drugs, which is more rigorous and more complex than the one commonly accepted for food supplements," he says. "It is important for consumer protection that national authorities and regulatory agencies require manufacturers to provide data to support any claim in the labels of products when the term nutraceutical is used."

Façade? British Nutrition Foundation questions benefit of skin beauty nutraceuticals

14 Feb 2018 Nutrition Insight

Although there is a growing market for orally consumed beauty supplements that promise "youthful," "firm" and "glowing" skin, the evidence to support some of the ingredients used in these popular, and often costly, products is limited.

This is according to a review of published research conducted by the British Nutrition Foundation (BNF).


Image © iStock.com/fizkes

The review concludes that nutraceuticals for skin may not add further benefit to the effects already obtained from a healthy diet. With the increasing pressures of social media, the desire for a "youthful" looking skin is more evident than ever. This has prompted an increasing demand for oral supplements – nutrients taken as pills, powders or drinks, rather than applied directly to the skin (sometimes termed "beauty from within") – claiming to improve skin appearance. The global beauty supplements market is expected to reach US$7,100 million by 2023. The BNF's review – Nutraceuticals and skin appearance: Is there any evidence to support this growing trend? – investigates whether oral beauty nutraceuticals can provide a defence against skin damage from external factors, helping to reduce wrinkles and maintain skin elasticity.

Some ingredients, such as vitamins A, C, B2, B3, B7, and the minerals iodine and zinc, are proven to contribute to the maintenance of normal skin. However, there is a wide variety of other ingredients used in oral beauty nutraceuticals including; green tea extract, pomegranate extract, carotenoids, evening primrose oil, borage oil, fish oil, collagen and co-enzyme Q10. According to the BNF review, although many of these are perceived as "natural" ingredients, with some having health benefits when consumed as part of our diet, there is only a small amount of evidence to suggest that, as nutraceutical ingredients, they could provide any real "anti-aging" benefit to the skin. The foundation highlights that results from some laboratory experiments – for example, conducted on skin cells in a dish – suggest that these ingredients can have antioxidant, anti-inflammatory or collagen enhancing effects. However, these results cannot automatically be assumed to be relevant beyond the laboratory. In its review, the BNF was only able to identify a limited number of well-conducted human trials, and the findings of these were inconsistent.

Healthy lifestyle choices like eating a nutritious diet, not smoking and not drinking alcohol in excess, as well as using topical sunscreen, are likely to be a much more effective in helping delay the inevitable skin aging process than taking oral beauty supplements, and will also have wider health benefits, according to BNF. Ayela Spiro, Nutrition Science Manager, British Nutrition Foundation, comments: "As consumers can spend hundreds of pounds a year on oral beauty supplements, we felt it was important to investigate the association between the ingredients in these products, and the signs that we associate with skin ageing, such as wrinkles, loss of elasticity and moisture. While there is a body of research on the science of skin aging, evidence for the benefit of nutraceuticals to skin appearance is currently not strong enough to draw firm conclusions."

Vegan diet improves diabetes markers in overweight adults: study

16 Feb 2018 Nutrition Insight

A plant-based diet improves beta-cell function and insulin sensitivity in overweight adults with no history of diabetes, according to a new study published in Nutrients by researchers from the Physicians Committee for Responsible Medicine. Measuring the function of beta cells, which store and release insulin, can help assess future type 2 diabetes risk.

The study randomly assigned participants – who were overweight and had no history of diabetes – to an intervention or control group in a 1:1 ratio. For 16 weeks, participants in the intervention group followed a low-fat vegan diet based on fruits, vegetables, whole grains and legumes with no calorie limit. The control group made no diet changes. Neither group changed exercise or medication routines. Based on mathematical modelling, the researchers determined that those on a plant-based diet increased meal-stimulated insulin secretion and beta-cell glucose sensitivity, compared to those in the control group. The plant-based diet group also experienced a decrease in blood sugar levels both while fasting and during meal tests.

Type 2 diabetes affects approximately 30 million Americans, with 84 million more suffering from prediabetes, and according to lead study author Hana Kahleova, M.D., Ph.D., this new study has important implications for diabetes prevention. The researchers posit that because the intervention group experienced weight loss, including loss of body fat, their fasting insulin resistance decreased (i.e., improved), and their beta-cell function improved as a result.

"This study adds to the growing evidence that food really is medicine and that eating a healthful plant-based diet can go a long way in preventing diabetes," says Dr. Kahleova. Plant-based diets are gaining attention for their myriad health benefits. Previous studies have shown that plant-based diets not only have the power to prevent and reverse type 2 diabetes, but that they also lead to weight loss, improved cholesterol levels, lower blood pressure and less heart disease.

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FOOD SCIENCE & INDUSTRY NEWS

Stop the loss of food

Food News LATAM FEBRUARY 27, 2018

It is amazing: one third of all the food produced in the world is lost or wasted before people consume it, according to estimates calculated by the Food and Agriculture Organization of the United Nations (FAO). This also amounts to a loss of 750 billion dollars a year. In general, crop losses threaten the entire food production chain: here are some examples.

Sowing

The challenge: Climate and weather

Farmers struggle against extreme weather in regions around the world. Vietnam, for example, experienced historical levels of drought in 2016, which led to record levels of salinity in the soil. These conditions mean that crops face poor growth, which often leads to unhealthy crops, which results in losses in the early stages of development.

One solution: Proper seeds

Producers need strong seeds that offer early vigour and high yield potential. For example, hybrid varieties of rice seeds perform well to resist diseases, insect pests and increased levels of water salinity. Through the use of hybrid seeds, Vietnamese rice producers have already significantly increased the yield potential. Worldwide, 1,300 million tons of food are lost or wasted each year, one third of all food produced for human consumption.

Before the harvest

The challenge: Crop diseases

Crops compete against 30,000 different weeds. They also fight against more than 10,000 species of hungry insects and 3,000 types of nematodes, as well as against a wide range of diseases caused by fungi, bacteria and viruses. All these enemies threaten the quality and volume of farmers' yields.

One solution: Digital tools for agriculture

Along with the tools of biological and chemical control of crop protection, farmers can take maximum care of their crops using digital tools: digital culture technology, such as GPS and sensors, empowers farmers among other things, to make a diagnosis of a specific disease of the plant immediately and directly in the field, avoiding the loss of crops from the beginning.

Exotic ingredients and new formats will help juice brands stand out in crowded category in 2018

By Eliabeth Crawford 01-Feb-2018 Food Navigator USA

To standout in an increasingly crowded category and manage rising consumer concerns about sugar juice manufacturers are incorporating more exotic ingredients while also streamlining formulas and playing with new formats according to one industry player.

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"The juice category is a very saturated category and it seems like it is only going to continue to get that way, but because there are so many of us in the category, people are having to find ways to differentiate themselves even more so than they were before," Natalie Sexton, director at Natalie's Orchid Island Juice Co., told FoodNavigator-USA. One way they are doing this is by introducing more exotic ingredients, including new fruits, vegetables and spices, she said.

"In the beginning, your traditional juices were vegetable-based, fruit-based, now you are seeing juices that have more of a spice base. o, they are moving toward the turmerics and the gingers, and even to an extent charcoal," she said. In addition, less familiar fruits and vegetables are being used to help boost the nutritional profile of juices and to create a new marketing message around enhanced nutrition, Sexton said. This also helps counter consumer concerns about too much sugar in juice because it provides a platform to talk about the vitamins, minerals and nutrients that come in high quantities in regular and super fruits and vegetables, she added.

However, she cautioned, new ingredients can also intimidate consumers, which is why Natalie's Orchid Island Juice Co. likes to pair them with familiar ingredients, such as in its Carrot Ginger juice, which combines well-known apples and carrots, with ingredients that are potentially new to consumers, such as turmeric. "Consumers want exotic, so from the producer standpoint we have to give them exotic, but in a realistic manner. e can't combine things that are too outlandish and taste terrible together," she said.

Juice shots are showing up on store shelves

Another trend that is setting some manufacturers apart from the pack is the emergence of juice shots at the retail level, Sexton said. Juice shots are showing up on store shelves. She explained that juice shots first appeared at juice stores as unique blends and concentrations with different health benefits, but now they are starting to show up at retail on a larger scale starting first in "advanced cities."

The shots are appearing in various places in stores, including on shelf next to full sized grab-and-go juices, in the produce aisle and even sometimes in the pharmacy as part of a refrigerated wellness display that also might include refrigerated nutrition bars or probiotic shots, Sexton said. With a price tag of 4 to 6 for a 1- to 6-ounce bottle, shots likely are not going to take off with the mainstream shopper any time soon, but Sexton says they will resonate with health and wellness oriented consumers who already pay premium prices for fresh pressed juices or kombucha, for example.

Counter sugar fears with natural benefits

The juice industry also will continue to battle consumer fears about excessive sugar, Sexton predicts of 2018. But she says one good way to address these concerns is to play up the natural angle and talk about the nutrition that comes from juice. Some companies also are using more vegetables, which have a lower sugar content than some fruits, Sexton said.

In this respect, she predicts that consumers also will want more single-ingredient vegetable juices, such as a plain carrot juice, and juices with fewer but high quality ingredients. "I think vegetable juices are still consistent and will continue to be consistent in terms of what consumers decide to buy, but think it may become more of a focus on minimalistic juices so more pure, like straight carrot juice or maybe straight kale juice, as opposed to these blends that have a wide range of ingredients," she explained. On this note, she expects more juices to highlight one to three ingredients versus a laundry list of small amounts of juices blended together.

Finally, Sexton predicts that bright colours will play a pivotal role in the ongoing sale of juices in the new year. "Beautiful, bright colours are something that are always attractive to the consumer, as opposed to darker more earthy tones," she said. But, she adds, natural will still trump colour. So, companies should avoid using artificial colours to make their juices appear brighter because consumers increasingly are avoiding products with artificial ingredients, she explained.

Food industry & others must work together to end childhood obesity as schools can't do it alone

By Elizabeth Crawford 08-Feb-2018
Food Navigator USA

The food industry remains on the hook along with families and local communities to more actively address childhood weight gain after new research published yesterday in The BMJ found comprehensive school-based programs that promote healthy-eating and encourage physical fitness are not a silver bullet to end the ongoing obesity epidemic.

Researchers led by Peymane Adab

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at the University of Birmingham's Institute of Applied Health research closely monitored the impact of a healthy lifestyle and eating program on the body mass index of about 1,400 children aged 6 to years old and, to their chagrin, found no significant change on the children's body mass index. The West Midlands ActiVe lifestyle and healthy Eating in school children, or WAES, program included additional daily physical activity, healthy eating education, cooking lessons for extended family and other opportunities to work with local sports heroes with the goal of reducing the obesity levels among the children after 1 and 30 month intervals.

While the program earned praise from teachers, parents and students alike who reported it was "fantastic" and made children more willing to try new fruits and vegetables, it ultimately did not deliver a significant difference in BMI between the control and test subjects at the end of 1 and 30 month intervals. The unexpected null results could be due to several imbalances between the control and test groups as well as inconsistent execution of the program's protocols at the different schools, note the researchers. However, they add that the results also suggest that childhood obesity prevention alone cannot be achieved by schools alone.

"While school is an important setting for influencing children's health behaviour, and delivery of knowledge and skills to support healthy lifestyles is one of its mandatory functions, wider influences from the family, community, media and the food industry must also be considered," they write in the study. They also suggest that interventions based on behaviour economics, such as nudge theory, which uses financial incentives to prompt healthier behaviour, also merit additional investigation. While the findings may be surprising initially, they may not be when considered in the broader context, argues Melissa Wake, a pediatrician and scientific director at the Gen initiative in Victoria, Australia. She notes in an accompanying editorial that "one reason for lack of progress may be the very fact that many anti-obesity programs are delivered through schools. t least in the United States, children typically gain fitness and lose fat during school terms, with virtually all increases in overweight and obesity occurring over the summer holidays - just when the programs cease to operate." Wake adds that this observation paired the with study's results suggest "it is time to step back, take stock, carefully examine longitudinal data from contemporary children and generate new, solution focused approaches that could maximize health gain and be rigorously and speedily tested."

Kiwi plant-based protein company targets global expansion for Chicken Free Chicken

By Lester Wan 31-Jan-2018 Food Navigator Asia

Auckland-based meat substitute producer Sunfed Meats, which has consistently sold out its Chicken Free Chicken in New Zealand, is in the midst of a series A capital raise to significantly expand production to meet growing local and overseas demand, and to launch new products.

Founder and CEO Shama Lee declined to disclose the amount they are looking for this time but Sunfed raised $1.5m in an earlier round, to commercialise Chicken Free Chicken. There has been especially strong interest from the US, UK and Australia. The company said the capital raise has been extended to cater to "major interest". "Our preference is for strongly-aligned and strategic

Image © www.sunfed.com

investors who can accelerate Sunfed's growth and add to our global vision," Lee told us.

International demand rapidly growing

She said that Sunfed plans to ramp up production 100-fold in order to start servicing international demand. "We have far more demand than we can meet from all sides of the business: retail, wholesale and fast food, and it keeps growing. It has all been organic word-of-mouth, which speaks about the product," she said. A Facebook video of Sunfed Chicken Free Chicken has gone viral with more than 10 million views. Sunfed Chicken Free Chicken was launched in July 2017, through the two largest supermarket chains in New Zealand, Progressives and Foodstuffs. It was sold out on launch day. While Sunfed has since been increasing production, its product is still consistently sold out. The company says it is continually inundated with queries about when new stock will arrive, and when its product will reach other areas. Sunfed Chicken Free Chicken is currently carried in 63 stores and outlets in New Zealand.

New scale, new products

With the capital raise for expansion, new plant-based meat products from Sunfed are in the works, such as Pig Free Bacon and Cow Free Beef. The launch date has yet to be confirmed. Asked if the new products would have the same properties and meet the same criteria as Chicken Free Chicken,

Lee responded: "Yes. All unfed products will meet the high standards of being clean and minimalist so soy-free, gluten-free, preservative-free, -free, and so on." It is also cholesterol-free and trans fat-free. Lee said there are several key differentiators of Sunfed Meats compared to other meat substitutes or plant-based protein products available in the market. She said, primarily, the taste and texture of Sunfed Meats is very similar to animal meat. "This is not the case with existing meat alternatives on the market," she said.

Sunfed Meats also claims to have the "cleanest, most-minimalist ingredient deck on the global market", using only six ingredients and water. Sunfed Meats is mainly made from yellow peas. Furthermore, Lee says that Chicken Free Chicken is a naked' product that is not hidden behind sauces, coatings or flavours like existing meat alternatives on the market." When asked what prompted her to go into the business of meat-free meat, Lee was passionate in her response. "Sunfed is built on three axioms: food for us, good for the planet, good for animals," she said. "I looked at it as, fundamentally, an energy problem. Just as there are sustainable and non-sustainable forms of other energy, so is the case with food."

New multifunctional chickpea flour billed as game changer for gluten-free formulation

By Elaine Watson
08-Feb-2018 Food Navigator USA

A highly functional, neutral-tasting chickpea flour that mimics the functionality of wheat flour but also "behaves like modified starch in some applications" could significantly improve the organoleptic and nutritional profile of gluten-free pastas, baked goods, and desserts - without the use of gums and starches, claim its developers.

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Artesa chickpea flour – which will be followed later this year by chickpea protein concentrates – was developed by Virginia-based Nutriati, and is being marketed by New Jersey-based healthy ingredients specialist PLT Health Solutions, an early investor in Nutriati, and the exclusive sales and marketing partner for artesa. While chickpea flour is not new, commercially available products can have a "musty, beany or bitter " flavour and yellow colour, a gritty texture and require the addition of gums, starches and other ingredients to mimic the functional properties of wheat flour, Nutriati co-founder Michael Spinelli told FoodNavigator-USA.

By contrast, artesa chickpea flour – which contains 12-15% protein (higher than rice, potato, tapioca, corn and sorghum - which vary from 0-7%) and 1% fat (far less than regular chickpea flour) – has a very fine, flourlike particle size, a white colour, good oil and water binding properties for products such as soup, sauces and gravies, and excellent functional formulating characteristics, he claimed. (Chickpeas contain 18-21% protein, some of which Nutriati uses to make its protein concentrates.) "We remove nearly all of the oil [chickpeas contain 7-9% oil; artesa has 1%], which is the part containing those volatile aromatic compounds, so we can eliminate the negative flavour components. We then very finely mill the chickpeas and modify the texture in a way that's unique, so you could have a chickpea pasta without using xanthan gum, and gluten-free breads and baked goods with more fibre, protein and resistant starch without the additives. So you can clean up your label. Because artesa lacks the oil, it's also more stable [than a standard chickpea flour].

"The functionality you get from the protein and the oligosaccharides combined with water in something like a pizza dough gives you the elasticity and stretchy 'memory' you need in this kind of application, and mimics what wheat gluten does, so you're not adding milk or egg protein, modified starch or gums. We can also create gluten free breads that don't tear when you spread butter on them." Pulse crops such as chickpeas draw nitrogen directly from the atmosphere, so farmers do not have to buy large amounts of nitrogen fertiliser in order to grow them. They are also a very efficient source of protein in environmental terms, requiring far less energy and water, and fewer pesticides than rival protein sources. Chickpeas are also non-allergenic and non-GMO. Low in fat and low GI, artesa provides a good source of protein (>12%) and adds fibre, resistant starch (twice the amount found in rice), vitamins (including 100% DV of folate) and other nutrients. "But it goes way beyond gluten free. If you use it in a traditional tomato bisque instead of modified starch or heavy cream, you can take out a third of the fat, reduce the saturated fat and calories and add fibre and protein. "We've also made some chickpea French fries with 10g protein and 4g fibre per serving," said Spinelli, who said Nutriati is also looking at applying its technology to other crops in order to build a broader platform of products further down the line.

Steve Fink, director of marketing, PLT Health Solutions, added: "If you think about the size of the prize, it's an interesting question. Gluten-free is the clearest initial market opportunity, but above and beyond that, artesa can be used for fat and dairy replacement in soups, sauces and dressings, and to add protein and resistant starch to pizzas, beverages, baked goods and

pastas. There are also completely novel applications." Fast-growing brands such as Banza (chickpea pasta), neat (egg replacers, meat analogs and baking mixes) and Rule Breaker (chickpea brownies) have been waxing lyrical about the technical as well as nutritional properties of chickpeas for some time, while a growing number of brands from The Good Bean and Biena Foods to Hippeas now use chickpeas in snacks.

According to Innova Market Insights, there has been a steady increase in the number of global new product launches featuring chickpeas in recent years: "Tracked product launches featuring chickpea flour have more than trebled from 2012 to 2017, as new application areas have opened up." However, chickpea protein is still relatively unknown to food formulators as it's not produced on a commercial scale by any of the major players in plant proteins, despite the fact that chickpeas are very widely grown and relatively cheap compared to some other potential new sources of plant-based protein. Chickpea flour is more common, but commercial varieties lack the functionality of new kid on the block, artesa, claim partners Nutriati and PLT Health Solutions.

Peanut milk delivers higher protein and a cleaner label in plant-based milk segment, says Elmhurst Milked

By Elaine Watson 05-Feb-2018 Food Navigator USA

Elmhurst Milked peanut milk - which has the protein content and creamy mouthfeel of dairy milk without the thickeners, emulsifiers and stabilizers deployed in most plant-based beverages - could form a base ingredient in protein shakes, yogurts and frozen desserts, says product manager Kimberly Behzadi.

Image © iStock.com/Amarita

Speaking to FoodNavigator-USA at the Specialty Food Associations Winter Fancy Food Show last month, Behzadi said: With the protein in these varieties of peanuts being so high, maybe we'll go with peanut protein shakes next. "Yogurt is another thing we're going to do a lot of research on." While Elmhurst Milkeds technology and machinery is set up for manufacturing beverages, there are lots of opportunities to explore other products with co-packers if consumers ask for them, she added. "I personally think that the milked peanuts would be fantastic as an great ice cream base, but really the sky is the limit." There are also opportunities to experiment with different peanut varieties, she said. "These first two products feature red runner peanuts, but I'm learning from the National Peanut Board that there are peanuts from all over. Maybe we'll do a honey roasted peanut, maybe we'll work with Valencia peanuts"

Peanuts mean protein

Elmhurst Milkeds peanut milk occupies a distinct position in the plant-based milk space by delivering more protein, less sugar, a creamier mouthfeel and a noticeably shorter, cleaner, label owing to a proprietary cold milling process, she claimed. The milks – which deliver a thick and creamy emulsion" without the use of the gums, stabilizers and emulsiers that feature in most plant-based beverages - also contain more nuts the source of the protein than many nut milks, and do not contain added protein isolates or concentrates, said Behzadi."Peanuts definitely mean protein, and of all of the family of plant-based milk products, peanut varieties have the highest in the portfolio, with our original peanut milk bringing 6g of protein in an 8oz glass and the chocolate variety brings 8g in a serving. You're getting 31 peanuts in an 8oz glass so you are going to taste that raw ingredient first."

Incremental growth?

So will peanut milk deliver incremental growth to the plant-based milks segment, or steal market share away from other players. Its early days, but given the unique taste, texture and higher protein content, it could bring in new consumers, particularly chocolate milk fans, predicted Behzadi. I do think that the milked peanuts with Dutch cocoa is a great alternative to traditional dairy chocolate milk and has a lot less sugar than some of those traditional chocolate milks on the market. So it has less sugar, but g of protein per oz serving. If I can get you to taste it, I know you're going to love it."

Manufactured by Steuben Foods in Elma, New York, via a patented, proprietary cold milling process that begins with whole nuts, the lightly tan-coloured original version of the peanut milk has a creamy mouthfeel but refreshing consistency created without emulsifiers, gums or stabilizers which are typically used to hold plant-based proteins in suspension and to create a thicker mouthfeel and contains only five ingredients: filtered water, peanuts, cane sugar, natural flavours, and salt, says Elmhurst Milked. The peanut milk has 150 calories per 8oz serving – which is at the higher end of the spectrum (an 8oz glass of whole milk has 136) - but has four times the nuts [31 peanuts in every glass], six times the protein 6g, and less sugar 5g than best-selling almond milk brands Silk and Almond Breeze, which both have 1g protein, 7g sugar, and 60 calories per 8oz glass. It contains a small amount of calcium from the peanuts, but is not fortified with added vitamins and minerals. The chocolate version, which contains slightly more protein and sugar (8g protein, 13g sugar/8oz glass, has fewer calories 130 as it has less fat 3g vs 11g for the original variety). The ingredients are the same as the original, but include Dutched cocoa.

REGULATORY NEWS

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High levels of resistance to antibiotics around the world

Food News LATAM 05 FEBRUARY 2018

The first data published by the World Health Organization on surveillance of antibiotic resistance indicate that levels of resistance to some serious bacterial infections are high in both high-income and low-income countries.

The new Global Antimicrobial Resistance Surveillance System of the Organization, called GLASS, has revealed the widespread presence of antibiotic resistance in samples of 500,000 people in 22 countries where bacterial infections were suspected. The most frequent resistant bacteria were Escherichia coli, Klebsiellapneumoniae, Staphylococcus aureus and Streptococcus pneumoniae, followed by Salmonella spp. The System does not include data on the resistance of Mycobacterium tuberculosis (the bacillus that causes tuberculosis), of which the WHO has been monitoring since 1994 and of which it publishes annual updates in its Global Report on Tuberculosis.

In patients in whom a blood infection was suspected, a wide variation among countries was observed in the proportion of those with bacterial resistance to at least one of the most used antibiotics, from 0% to 82% Resistance to penicillin, the drug used for decades around the world to treat pneumonia, ranged between 0% and 51% in the countries studied. In addition, between 8% and 65% of the samples of E. coli, a bacterium that causes urinary tract infections, were resistant to ciprofloxacin, an antibiotic commonly used to treat these infections. Dr. Marc Sprenger, Director of WHO's Secretariat for Antimicrobial Resistance, notes that "the report confirms the serious situation of antibiotic resistance worldwide."

Dr. Sprenger explains that "we are proving that some of the most frequent and dangerous infections are drug-resistant. What is more worrisome is that these pathogens do not respect national borders. For this reason, WHO encourages all countries to establish good surveillance systems to detect drug resistance, which can provide data to the global system. " The WHO Global Monitoring System for Antimicrobial Resistance currently includes 52 countries (25 high-income, 20 medium-income and 7 low-income countries). For this first report, 40 countries provided information on their national surveillance systems and 22 countries also provided data on their levels of antibiotic resistance.

Dr. Carmem Pessoa-Silva, coordinator of this new system in the WHO, explains that "the report is a fundamental first step to improve our knowledge of the scope of antibiotic resistance. This surveillance is still in the making, but it is essential to develop it if we want to anticipate and tackle one of the greatest threats to global public health." The data presented in this first GLASS report vary greatly both in quality and comprehensiveness. Some countries encounter significant problems in establishing their national surveillance system, including the lack of personnel, budgets and infrastructure. However, WHO is helping many countries to implement their national antimicrobial resistance surveillance systems in order to obtain useful and reliable data. The GLASS System is helping to harmonize data collection in all countries in order to draw a more complete picture of the patterns and trends of antimicrobial resistance.

Solid drug resistance surveillance programs in TB, HIV and malaria have been functioning for many years and have helped estimate disease burden, plan, diagnostic and treatment services, monitor the effectiveness of control interventions, and design effective treatment regimens to address and prevent future resistance. GLASS is expected to perform a similar function for common bacterial pathogens.

For many years, robust surveillance programs for antimicrobial resistance for tuberculosis, HIV infection and malaria have helped to estimate morbidity and mortality from these diseases, to plan diagnostic and treatment services, to know the effectiveness of interventions and determine effective treatment guidelines to stop the resistance and prevent it from appearing in the future. It is expected that the GLASS system will work in a similar way for the surveillance of the most common pathogenic bacteria.

The use of the GLASS system is already driving progress in many countries. For example, in Kenya, it has served to promote the establishment of the national system to combat antimicrobial resistance; Tunisia, for its part, has begun to compile data on antimicrobial resistance at the national level; the Republic of Korea has completely modified its national surveillance system to harmonize it with the GLASS methodology, which has enabled it to provide very complete and high-quality data, and countries such as Afghanistan and Cambodia, which have significant structural problems, have incorporated into the system and are using the GLASS framework to strengthen their capacity to monitor these resistances.

'Beauty from within' not backed by scientific evidence

By Rick Pendrous 14-Feb-2018 Food Manufacture

Very little evidence exists to support the use of some ingredients used in popular and often costly orally consumed beauty supplements that promise youthful firm and 'glowing' skin according to new research by scientists at the British Nutrition Foundation (BNF).

A review of published research conducted by the BNF, released today (February 13), concluded that while a healthy, balanced diet, containing essential vitamins and minerals, was required for healthy skin, nutraceuticals for skin may not add further benefit to the effects already obtained from a healthy diet. The desire for youthful skin was more pronounced than ever and many people go to great lengths to beautify themselves, said the BNF. As a result, there was an increasing demand for oral supplements nutrients taken as pills, powders or drinks, rather than applied directly to skin (sometimes termed 'beauty from within') claiming to improve skin appearance.

Beauty from within market
The global beauty supplements market is expected to reach $7.1bn by 2023, according to a report published by Research and Markets last September. Scientific evidence showed that skin ageing was a natural process that can be exacerbated by external factors, such as sun exposure, causing damage to skin cells and structures, reported the BNF in its review, titled 'Nutraceuticals and skin appearance: Is there any evidence to support this growing trend?'. The study, which will be published in the March issue of BNFs Nutrition Bulletin , investigated whether oral beauty nutraceuticals could provide a defence against skin damage from external factors, helping to reduce wrinkles and maintain skin elasticity.

The review examined published evidence behind some of the common ingredients used in the most popular products, to explore whether they had been found to benefit skin appearance in clinical studies. Some ingredients, such as vitamins A, C, B2, B3, B7, and the minerals iodine and zinc, were proven to contribute to the maintenance of normal skin, and a deficiency of these essential micronutrients could result in skin abnormalities, said BNF. However there was a wide variety of other ingredients used in oral beauty nutraceuticals including green tea extract, pomegranate extract, carotenoids, evening primrose oil, borage oil, fish oil, collagen and co-enzyme 10.

Little evidence that they work
According to the BNF although many of these were perceived as natural ingredients, with some having health benefits when consumed as part of our diet, there was only a small amount of evidence to suggest that, as nutraceutical ingredients, they could provide any real anti-ageing benefit to skin. The BNF said making healthy lifestyle choices like eating a nutritious diet, not smoking and not drinking alcohol in excess, as well as using topical sunscreen, was likely to be a much better route to helping delay the inevitable skin ageing process than taking oral beauty supplements, and will also have wider health benefits.

"As consumers can spend hundreds of pounds a year on oral beauty supplements, we felt it was important to investigate the association between the ingredients in these products, and the signs that we associate with skin ageing,


Image © iStock.com/puhhha

such as wrinkles, loss of elasticity and moisture", said Ayela Spiro, BNF nutrition science manager. "While there is a body of research on the science of skin ageing, evidence for the benefit of nutraceuticals to skin appearance is currently not strong enough to draw firm conclusions."

EJC opinion suggests genetic engineering exempt from GMO regulations

By Katy Askew 19-Jan-2018 Food Navigator

The European Court of Justice Advocate General has issued an opinion that genetic engineering techniques such as CRISPR should be considered exempt from European regulations governing GMOs.

According to the European Commission, a genetically modified organism (GMO) is "an organism whose genetic material has been altered by means of genetic engineering to include genes that it would not normally contain". Under Regulation (EC) No 1829/2003 on genetically modified food and feed, GMOs must receive approval from the EC following a safety assessment by the European Food Safety Authority and evaluation by the Standing Committee on the Food Chain and Animal Health before they can be cultivated. Europe also requires products containing GMO ingredients above a 0.9% threshold to be "clearly" labelled. The European Parliament established that packaging must state: "This product contains genetically modified organisms" or "this product contains genetically modified [name of organism(s)]" directly on the label. All non-packaged products that contain GMOs must include the statement within the product display.

In a legal opinion published this week, EJC Advocate General Michal Bobek said genetic engineering processes, known as New Plant Breeding Techniques (NPBTs), should be exempt from the rules provided no foreign DNA is inserted into the genetic sequence. "Mutagenesis techniques are exempt from the obligations of the GMO Directive provided that they do not involve the use of recombinant nucleic acid molecules or GMOs," the opinion read. The opinion was issued after France requested clarification on the status of NPBTs in 2016. It suggested that Member States are free to introduce national regulations, provided they do not conflict with European legislation.

How are NPBTs different from GMOs?

Developments in genetic coding techniques open the doorway to crops that produce higher yields or have positive characteristics, such as drought or pest resistance. The EU regulates the cultivation and use of GMOs in food but debate rages over how to treat new genetic engineering biotechnologies such as CRISPR. CRISPR stands for Clustered Regularly Interspaced Short Palindromic Repeats, the hallmarks of the bacterial defence system, which forms the basis of CRISPR-Cas genome editing technology.

CRISPR-Cas can be used as an advanced plant-breeding tool that facilitates crop breeding by making cuts at specific locations in a plant genome. Subsequent repair of the cut by the cell's endogenous repair mechanism can introduce precise changes. The system works with the native characteristics in the crop and does not introduce new genes. Proponents argue that this means that the new biotechnology poses fewer risk factors than GMOs and the process is frequently compared to traditional crop breeding techniques.

Ignoring the 'precautionary principle'?

The European organic food sector has been a chief opponent of the unregulated use of NPBTs. Organic trade body IFOAM EU, which represents more than 190 organic organisations, insisted that the decision ignores the principle of the "precautionary principle". "There are no legal or scientific reasons to exempt from risk assessment, traceability and labelling, recently developed genetic engineering," Eric Gall, IFOAM EU policy manager, insisted. "Exempting these new genetic engineering from a risk assessment would be a blatant denial of the precautionary principle and of the citizens' right to know how their food is produced."

An EJC Advocate Opinion is non-binding and advisory for the panel of judges who will decide the case. When the EJC does rule on the case IFOAM EU called on the judges to consider the "intentions of the legislator" when the EU's GMO regulations were first conceived in 1990. "The intention of the legislator back in 1990… was to only exempt from risk assessment techniques which were used since the 1960s and which had a long safety record," Gall argued. The EJC's final decision is expected later this year.

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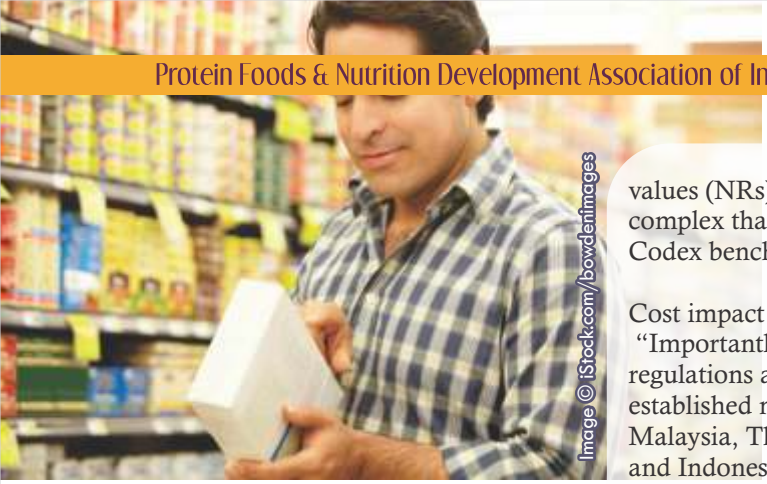
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Three-step plan unveiled to achieve harmonised nutritional labelling in ASEAN

By Gary Scattergood 2-Feb-2018 Food Navigator Asia

A three-step approach has been put forward to help ASEAN move towards a more harmonised regime for nutritional labelling with a new report revealing that varying standards are contributing towards the lacklustre export performance of the packaged foods sector.

The report, published by the ASEAN Food and Beverage Alliance (AFBA), found the region's packaged food sector to be highly regulated, with 42.7% of the region's non-tariff measures (NTMs) affecting the industry. And despite many of the regulation being broadly similar, crucial, "nuanced differences in the labelling requirements prevail across the region," noted the report.

"Specifically, regulatory incoherence is evident from the breakdown of the seven core elements of nutrition labelling. The non-harmonised labelling regulation and the high export coverage of labelling would therefore have profound implications for export performance of packaged foods." The report then surveyed 26 food exporters in Malaysia, Thailand, Philippines and Indonesia to gauge their views. Their feedback revealed that reveal nutrition (function) claims and nutrition reference values (NRs) in the region are more complex than the International Codex benchmark.

Cost impact

"Importantly, the inconsistencies in regulations are noted even for the established markets in E, such as Malaysia, Thailand, the Philippines and Indonesia," added the report, authored by Dr Evelyn S. Devadason, an Associate Professor at the Faculty of Economics and Administration, University of Malaya.

"Multiple costs are incurred in complying with nutrition labelling due to an introduction or change in legislative requirement in the E export market. part from the impact on business compliance costs, complex nutrition labelling schemes are found to distort trade through product price increases and/or market and product losses." Therefore, while most of the measures affecting the industry are non-tariff policies, the eventual impact is that they become a barrier to trade.

Despite this, the report found that not all firms surveyed supported mandatory nutrition labelling in ASEAN as a means to achieve harmonisation. "However, all firms want some form of consistency in nutritional labelling, and therefore support the alignment of the guidelines with Codex and the harmonisation on grounds that common labelling schemes are needed to reduce compliance costs and address the existing information overload on nutrition for consumers for some food products."

Three factors

In order to move forward the report recommends three next step to boost trade. First, it is recommended that industry adopts a standard format, aligned to Codex, and identifies the minimum requirements within the code's basic nutrient list that should be made mandatory. The second is to streamline Nutrition Reference Values as a priority across the region. Thirdly, it calls for a consensus to be achieved around a standardised Nutrition Information Panel format and design, a common declaration list of carbohydrates, minerals and vitamins, and a common approach for functional claims. The report concluded that ASEAN should nurture bottom-up approach, especially in dealing with the harmonisation or streamlining of technical requirements.

"At the regional level... input from the food industry is important to harness the concerns of the industry players and undertake regulatory changes that benefit the industry. Representation from the food industry...is essential to inform the discussion on the complexity of the regulations, the extent of incoherence in the regulations, and more importantly on the minimum similarities in the requirements that would benefit the industry and facilitate regional trade." The report will be officially launched in Singapore on February 28.

Exempt gene editing from GMO rules

By Noli Dinkovski 21-Feb-2018 Food Manufacture

Gene-edited crop production could be set to become more widespread after a leading E lawyer claimed the technique should be exempt from genetic modification organism GMO rules.


Image © iStock.com/CherriesJD

However, he added that, were the rules to change, individual EU Member States could still regulate against them, should they choose. Organisms obtained by mutagenesis should not be seen as GM unless they contained nucleic acid molecules or other GM organisms inserted through laboratory methods, a preliminary opinion piece published last month by EU advocate general Michal Bobek has argued. The advice, which isn't legally binding, came ahead of an EU court ruling expected later this year. If this rules that gene-edited crops should be classified as GM, they would be subject to the same risk assessment, labelling and monitoring as GM crops.

GM crops

However, Bobek said he did not see any grounds deriving from the general duty to update legislation (in this case enhanced by the precautionary principle), which could affect the validity of the mutagenesis exemption". But, environmental campaigners have voiced strong opposition to any exemption in GM rules. Mute Schimpf, food and farming campaigner at Friends of the Earth Europe, said farmers and consumers across the EU expected any new approach to producing food and crops to be fully tested to make sure it was safe for the public and the environment.
"They will be counting on the European Court of Justice to not uphold the opinion, and instead make sure that all new GM foods and crops are properly regulated," she added. Corporate Europe Observatory's agriculture campaigner Nina Holland said the safety of this new generation of GM crops remained completely untested and must, therefore, not be exempted from existing safety rules".

Gene editing

However, Professor Robin Lovell-Badge, group leader at The Francis Crick Institute claimed that if gene editing was used to make an alteration in the DNA of a plant or animal that could occur naturally or deliberately by mutagenesis, then it should be exempt from GMO regulations. "One could argue that the precision of genome editing might be safer than the randomness of mutation (by chemicals or radiation), which has been the standard way to obtain genetic variation within a plant species, from which new varieties are then selected."

Professor Huw Jones, chair in translational genomics for plant breeding at Aberystwyth University, said he was happy that this proposal excluded simple gene editing from GMO. "However, allowing Member States to legislate independently will inevitably complicate innovation, commercialisation and trade in gene-edited products," he cautioned.

Indian economy would benefit from better food safety – study

By Joseph James Whitworth 30-Jan-2018 Food Navigator Asia

Understanding the costs of not having an adequate food safety system is crucial ahead of any action to avoid increases in food-borne illness in India, according to a study.

Using MAGNET, a macro-economic model developed at Wageningen Economic Research, the FBD burden in 2030 was estimated taking into account an increasing population, GDP growth and urbanization in India. About 100 million cases of food-borne diseases (FBD) were estimated for the country in 2011 but it is almost certainly an underestimation due to lack of accurate data. This data comes from the World Health Organization (WHO) Food-borne Disease Epidemiology Reference Group (FERG) in 2015.

One out of nine people sick by 2030
Researchers found the number of FBD cases is expected to rise from 100 million in 2011 to 150-177 million in 2030. This means that by 2030, one out of nine people on average fall sick, up from one out of 12 in 2011. However, rich rural and urban households will be disproportionally more affected, where every third person could fall sick from food-borne disease. Given possible underestimation of the FBD burden, GDP gains could amount to $80bn, if the illness ratio is one in three instead of one in nine.

The growing FBD burden is attributed mostly to the GDP growth followed by population growth. The GDP effect provokes a significant increase of meat consumption by 2030 (albeit from a low base relative to the rest of the world), which is a highly susceptible

Image © iStock.com/zimmytws

category for infectious food diseases. Due to rising domestic demand and food prices the negligible share of exports will decline further.

FBD costs may reach between $7bn and $8.4bn in 2030, which represents a significant increase from $3bn estimated in 2011. The share of health care costs saved due to avoided FBD illnesses ranges between 2.7% - 3.2% (depending on the FDB assessment method).

Type of household and income

Between 58,000 up to 70,000 deaths annually could be expected from FBD diseases, depending on the assessment method used, with notable differences across household groups. It is not guaranteed households with higher income are less prone to fall sick by FBDs.

"On the contrary, due to their preference for more luxurious types of food such as meat, fruit and vegetables, richer households are paradoxically more affected than lower income households. In view of the continuing process of urbanization and GDP growth, every third person in the rich urban household may be affected by FBD by 2030, which is notably more than the average one out of nine."

Avoiding FBD burden benefits richer households first but other households benefit indirectly as incomes rise and food prices go down. Although there is growing recognition of the importance of food safety it is not reflected in India's public funding priorities, said researchers. One potential benefit from the increase of food safety would be to enhance export opportunities. When looking at existing consumer preferences data does not indicate Indians are preferring imports because of food safety reasons. Empirical evidence on food scandals shows there impact are rather short-term.

Positive impact on economy

The analysis shows investments in food safety can bring a positive impact on the Indian economy. Favourable structural change, support of employment of skilled labour and growth of services are important positive effects of a food safety policy. Higher income groups perform more skilled labour and a reduction of FBDs makes skilled labour-intensive sectors more competitive. Because costs of skilled labour decrease, government services become more accessible.

It can be expected that if there was a well-functioning food safety system, labour supply would be on average 0.1% higher. Although increases in labour supply result in a decline of wages, prices for land and capital go up which compensates the income gap of rich households. Investments in food safety become even more urgent to avoid an increase in food-borne disease burden undoing health benefits from the diet transition from staple foods to more nutritious items such as meat, fruits and vegetables.

India's food safety authority proposes traffic light labelling for foods sold at schools

By Lester Wan 27-Feb-2018
Food Navigator Asia

The Food Safety Standards Authority of India FSSAI wants to introduce a traffic light labelling scheme for foods sold in school canteens and ending machines, in a bid to curb consumption of sugary drinks, heavily processed foods and confectionery.

The regulator believes that using colour-coded labelling will encourage the consumption of healthier 'green' foods – mainly fresh fruits and vegetables, whole grains, legumes, lean meat, eggs and fish and discourage the consumption of 'red' foods – those with high fat, salt and sugar (HFSS) content such as deep-fried foods, sugar-sweetened beverages, processed foods and confectionery.

'Yellow' foods such as ice cream, dairy-based desserts, breads, biscuits, processed and packaged soups and meat or fish products, and cereal and malt-based beverages, are suggested to be taken in small portions and with reduced frequency. "The foods and beverages categorised as green or yellow may be included on the school menu and reviewed by the School Health and Wellness Team on periodic basis with a focus to continuously improve the safety and nutritious quality of foods served in schools," said the authority.

This will apply to all school meals' that are sold or supplied on the school campus, whether through the canteens, school mess or vending machines. The draft regulation also states: "The school authority selling

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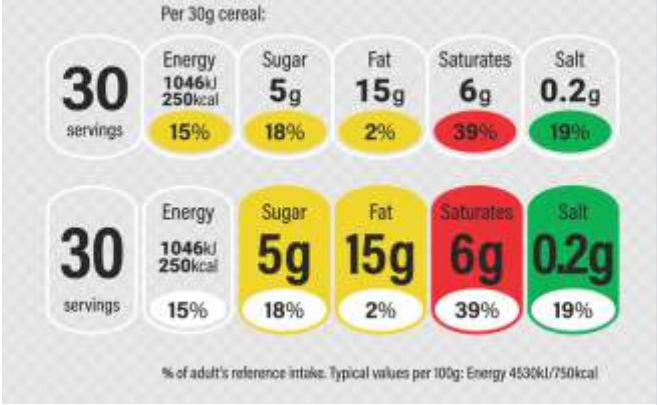

or catering school meals must obtain a license or be registered as a food business operator FB from the concerned licensing authority under the provisions of the Food Safety and Standards Act, 2006."

Promoting a healthy, well-balanced diet

Furthermore, the proposal says that school authorities shall encourage and promote a balanced diet as defined by the National Institute of Nutrition (NIN). "It should provide around 50-60% of total calories from carbohydrates, preferably from complex carbohydrates, about 10-15% from proteins and 20-30% from both visible and invisible fat. In addition, it should provide other non-nutrients such as dietary fibre and antioxidants, which bestow positive health benefits," said the FSSAI.

Beyond that, school authorities shall also forbid the sale of HFSS foods to school children within their premises. "Food business operators manufacturing HF food products shall not advertise such foods to children in school premises," it further stated. As for the state, the authorities will ensure that there will be no sale of HFSS foods to school children within 50m of the school.

Food safety and hygiene rules outlined

Other detailed guidelines include "safety, sanitary and hygiene requirements for the handling, preparation and transportation of food. Among them, they state that food handlers or cooks shall wear clean and proper gear, and will have to go for periodic medical examinations to ensure they do not have any infectious disease. The traffic light labelling scheme and draft regulations were drawn up by the FSSAI based on suggestions from an independent panel of nutrition and health experts. The FSSAI has sought views, comments and suggestions from industry stakeholders on the draft, which will become the 'Food Safety and Standards (Safe and Wholesome Food for School Children) Regulations, 2018'.

Molecular biology could hold the key to detect and deter widespread seafood fraud

By Elizabeth Crawford 31-Jan-2018
Food Navigator USA

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Complex supply chains, heavy processing and continual supply and demand issues make seafood the ideal target for food fraud, but innovations in molecular biology, along with other tried and true detection and deterrent methods could reduce the risk and prevalence of adulteration in the segment, according to an industry expert.

"Each year over million tons of fish are eaten across the world," and approximately 2.5 million people rely on seafood for 20% of their diet, making fish the largest traded food commodity in the world worth 400 billion annual at the point of sale, according to Chris Elliott, founder of The Institute for Global Food Security and pro-vice chancellor for faculty of medicine, health and life sciences at Queen's University in Belfast. Once processing and other added value aspects of the seafood industry are factored in, "the true value of the world's supply of seafood could easily be double or triple that" making it a lucrative and tempting segment for economically motivated adulteration, he added. For those so inclined to act on that temptation, there are opportunities up and down the supply chain, the incredible complexity of which appears to over the perfect cover for nefarious activities, Elliott acknowledged. However, he added, quickly developing technology is making it increasingly difficult to get away with adulterating seafood and could hold the solution to a safer supply in the near future. One such technology is molecular biology, which Elliott notes "has been one of the most widely and fundamentally used tools" to detect adulteration in seafood, but thanks to advancements over the past few years can now help detect and deter other types of fraud.

Uncovering species substitution

At its most basic level, molecular biology allows researchers, suppliers and manufacturers to verify if a species of seafood is what it is claimed to be by testing a sample of its DNA, he said. "You can see a DNA finger print, so each line is a different species of fish and each will have a slightly different fingerprint, and you can match those patterns of lines against what is known for a particular type of species," and in less than six hours stakeholders will know if seafood has been compromised, Elliott said. This tool is particularly useful at identifying adulteration done by species substitution, which is virtually impossible to detect based on just the appearance of a higher and lower quality of fish, he said.

Fighting species adulteration

It also can help untangle species adulteration, which is when other types of fish are blended to increase the economic advantages of fish, he said. "This type of fraud becomes more complicated because not only do you have to measure the DNA that is present, you have to be able to quantitatively measure the amount of DNA that is present of each species," but innovations in molecular spectroscopy are speeding solutions to this challenge, Elliot said.

The technology also can detect when non-seafood substances are added to fish or shellfish to make them appear plumper or increase their bulk so that they can sell at a higher price, he said. As the technology evolves, it is becoming more portable so that molecular spectroscopy platforms can now be carried to and used at processing plants, allowing inspectors to identify another type of fraud undeclared product extension more easily, Elliott said. He explained that undeclared product extension is a technique used to make a unit of fish appear heavier, either through water retention or other solutions infected into the fish. Previously, this was uncovered by measuring the dry weight of fish to see if it aligns with the particular species. In addition,


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inspectors can look for phosphates, which should not be present in fish but are in water retention elements. Molecular spectroscopy cameras, however, can quickly capture images of different fish and separate them out based on their different spectral strands so that inspectors know within seconds and without the fish being processed if it is adulterated.

Detecting the true origin of seafood
Molecular biology also can help instances of fishery substitution, or when product from a fishery with a bad reputation is put forth as product from a fishery from a good reputation, Elliott said. For example, he explained that North Sea cod is sometimes substituted for Icelandic cod, which has a better reputation for sustainability, so it may be easier to sell.

Traditionally, this type of fraud is uncovered through auditing of records to see where a particular fish came from, but given the many ways that there are to cheat the auditing system, a more reliable option is to test seafood's "population genetics," Elliott said. He explained that fish from different locations of slightly different genetic make ups - even if they are the same species, and this can be detected using molecular profiling.

Another option is isotopic mapping, which analyses the amount of carbon, hydrogen, oxygen, sulphur and nitrogen, all of which vary based on where a fish originated, he said. Similarly, he said, emerging block-chain technology can be used to more carefully identify, track and trace each place the seafood has been.

Ethically adulterated seafood
Metabolic finger printing can even be used to identify instances of "ethically motivated adulteration," but it is more limited, Elliott said. He explained that metabolic fingering printing can distinguish between fish caught using different methods, such as trollers or line and pole, that latter for which consumers often are willing to pay more.

However, when it comes to distinguishing if fish is caught under size or from unlicensed fishers, metabolic technology falls short. Instead, Elliott said, industry must rely on radar, which can track where boats are, how long they stay in one place and where they land their catch. Metabolic technology also cannot currently help with the "scourge" of modern day slavery used to harvest seafood, Elliott said. However, he noted, that he is exploring if science can help detect and deter this type of fraud. Until then, a better bet might be the use of block-chain technology.

The last "sin of seafood" that Elliott says molecular fingerprinting tools soon could help address are poor animal welfare conditions, which he says are a problem with some farmed sh. "Farmed fish has a number of issues, one of which is stocking densities, how fish are slaughtered, how they are transported," all of which likely would impact the quality of seafood and therefore be detectable via molecular finger printing tools, Elliott said, adding that this a "challenge going forward" for researchers to address.

'No added sugar' plus a sweetener? 'Pure and simply illegal,' says Test Achats

By Niamh Michail 06-Feb-2018 Food Navigator

If a product in the EU has a 'no added sugar', it cannot contain any added sweetener, natural or artificial. Yet too many companies are flouting this law and it's "pure and simply illegal", says Belgian consumer group Test Achats.

Test Achats carried out a survey on food products on Belgian supermarket shelves such as spreads, chocolate bars and cookies that claim to have no added sugar, and found that many contain sweeteners. "This is in total contradiction with the applicable legislation and the unequivocal interpretation that is made by the FPS Public Health. Indeed, the claim 'no added sugars' cannot be axed to a product containing a foodstuff, such as a sweetener, used for its sweetening property," it said.

The consumer association sent an official letter in December to the five manufacturers whose products claim to be sugar-free despite containing sweeteners: Sweet-switch, Damhert Nutrition, Canderel, Dukan, and Boerinneke. Chocolate spread manufacturer Boerinneke and health food specialists Dukan and Damhert Nutrition use malitol to replace sugar while Sweet-Switch uses stevia. Canderel blends the artificial sweeteners aspartame and acesulfame-k, adding erythritol as a bulking agent for its table-top sweeteners.

Official complaint

Test Achats said that Boerinneke, Dukan and Damhert Nutrition responded almost immediately saying they would change the products' packaging to bring them in line with the legislation. Canderel initially contested Test Achats' complaint but then said it was "considering how [it] can adjust [its] labels to respond to comments". Sweet-Switch, however, has contested Test Achats, prompting the consumer association to file an official complaint against the manufacturer of stevia-sweetened sweets, chocolate, biscuits and spreads to the Belgian Federal Public Service for Health, Food Safety and the Environment.

What claims can manufacturers legally make?

In Europe, manufacturers may only make health and nutrition claims on food, beverage and nutrition products if they have undergone a scientific evaluation and been approved by the Commission.

Claims around sugar content must adhere to the rules below.

LOW SUGAR: A claim that a food is low in sugars, and any claim likely to have the same meaning for the consumer, may only be made where the product contains no more than 5 g of sugars per 100 g for solids or 2.5 g of sugars per 100 ml for liquids.

SUGAR-FREE: A claim that a food is sugars-free, and any claim likely to have the same meaning for the consumer, may only be made where the product contains no more than 0.5 g of sugars per 100 g or 100 ml.

WITH NO ADDED SUGAR: A claim stating that sugars have not been added to a food, and any claim likely to have the same meaning for the consumer, may only be made where the product does not contain any added mono- or disaccharides or any other food used for its sweetening properties. If sugars are naturally present in the food, the following indication should also appear on the label: 'Contains naturally occurring sugars'.

Approved health claims are listed in the Annex of Regulation (EC) No 1924/2006, amended by Regulation (EU) No 1047/2012.

'The solution is to make foods taste less sweet'

According to Test Achats, "the solution to the problem of overconsumption of sugar is not to replace sugar with sweeteners, or other sweetening ingredients - without calling into question their usefulness in the context of diabetes - while adding illegal claims to the products which make them look healthier than they actually are.

"The solution lies in a gradual decrease by manufacturers of the sugar content of their products, so that everyone gets used to a less sweet taste."

Some manufacturers are already doing this, the consumer association said. It praised them for "this first step in the right direction".

Which food labelling claims put you most at risk of a class action lawsuit? (Spoiler alert... it's not just 'all-natural')

By Elaine Watson 01-Feb-2018
Confectionery News

Think you're on safe ground if you follow the letter of the Food, Drug, and Cosmetic Act? It's a good start, said attorneys at a recent webinar, but it won't stop you getting sued: "We're beyond the days when you can just check for compliance with FDA regulations."

The problem, said OFW Law attorneys Bruce Silverglade (principal) and Mason Weeda (associate) during a webinar hosted by the Food Institute last month, is that the FDA hasn't gotten around to defining scores of claims routinely used on food packaging, from 'natural,' 'wholesome' and 'nutritious' to 'made with whole grains' (on which it has issued draft guidance , but not legislation), 'artisan' or 'handcrafted.' And that's before you get onto the issue of whether dairy products from cows fed GM feed are 'natural' or whether an incidental additive approved for use in a natural flavour would render the final product it is used in 'unnatural.'

"For the most part, there are more undefined claims than defined claims in the food industry," said Silverglade. "And these are subject to the state consumer protection laws," whereby plaintiff's attorneys will argue that a reasonable consumer would not consider a product containing 10g of added sugar to be 'nutritious,' or that tea or oatmeal containing trace levels of pesticide residue should be labelled 'natural.'

What sources are plaintiff's attorneys citing in lawsuits?

While plaintiff's attorneys closely monitor FDA warning letters, they also pay attention to opinions from scientific bodies, consumer advocacy groups and organizations


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such as the World Health Organization, reports from which have been repeatedly cited in class action lawsuits over added sugars and glyphosate in recent months, noted Silverglade.
"Developments around the world can impact litigation here in the US… What can start as an article in a consumer group's magazine can end up as class action litigation."

Potential trouble spots
So where should food and beverage manufacturers tread particularly carefully if they want to avoid legal hot water? Below are just a handful of examples highlighted in the webinar:
Added sugar : While the criteria for making 'healthy' nutrient content claims don't even mention sugar, this hasn't stopped plaintiff's attorneys from targeting manufacturers they claim are misleading shoppers by portraying products high in added sugar as nutritious and wholesome. But how much added sugar is too much? This is a good example of where plaintiffs have seized upon WHO recommendations that we reduce added sugar intakes to 10% of energy (50g added sugar), and ideally aim to get below 5% (25g added sugar) for adults, noted Silverglade. So, for example, if you state or imply that a snack/beverage containing 20g of added sugar (40% or 80% of your daily recommended intake depending on which WHO figure you cite) is good for you, you could potentially face legal challenges. In fact, suggested Silverglade, "It's dangerous to use 'healthy' with a product with more than 20% of the daily value for added sugars… so products with more than 10g of added sugars can make a healthy claim legally under FDA rules, but at their own risk when it comes to class action lawsuits." No added sugar: Another area to watch out for is 'no added sugar' claims, a claim over which some 100% juice brands have recently been sued, said Silverglade. While the claim might be factually true, you are not allowed to make it if the products consumers might be comparing your product with would not normally contain added sugar. Value added ingredients used in insignificant amounts : Manufacturers should avoid overstating the importance of a value-added ingredient that's used in an insignificant amount, said Silverglade, citing lawsuits against a range of brands from Minute Maid to Veggie Straws for providing top billing on the product label to an ingredient (veggies, chia, turmeric) that features way down the ingredients list. Wholegrain claims: While there is FDA draft guidance on this, it doesn't cover all angles, and is not written into law, noted Silverglade, who advises companies "to avoid claims such as 'made with whole grain our'" if your predominant ingredient is not wholegrain our. While a recent case taking issue with wholegrain claims on Cheezits was dismissed at the district court level, it is now on appeal, so remains "one to watch," he said.

Fruits and veggies in processed foods: In general, said Silverglade, "Don't overstate a product's health benefits or imply eating processed foods is equivalent to eating fresh fruits and vegetables." Natural claims : "Absent formal FDA regulations, these cases will continue to flourish ," predicted Silverglade, who noted that any mention of completing the FDA's probe into natural claims was "conspicuously absent " from the agency's 2018 strategic roadmap , suggesting we are still no closer to a legal definition. While brands are careful to avoid natural claims on products containing artificial additives, plaintiff's attorneys are now focusing on natural claims on products in which genetic engineering featured anywhere in the production process (or in feed for dairy cows), products containing even trace levels of pesticide residue, and "anything seen as heavily processed, even if from natural source. " Meanwhile, firms should simply avoid making natural claims on certain "lightning rod ingredients" such as high fructose corn syrup, even though the FDA has indicated it distinguishes between different production methods, he said: "My short advice is that if you are using HFCS, don't say all natural…"

Sins of omission: Brands should also be careful of sins of omission, said Silverglade, citing a case (Miller v Yucatan Foods) in which a guacamole product was labelled '95% avocado, 5% spices' when it also contained other ingredients such as xanthan gum and evaporated cane juice (aka sugar). Country of origin: Just because you state on pack that your product is made in country x, you shouldn't imply via words or imagery that it's made somewhere else, said Silverglade, who noted that litigants have historically targeted the alcoholic beverage industry but could easily start targeting packaged foods and non-alcoholic beverages as well. Matching rivals' claims: This might seem obvious, said Silverglade, but "Don't make a risky claim just to keep up with a competitor. One thing we often hear is, well my competitor is making this claim, why can't we make it? It may be that as you speak, your rival is on the phone with a class action attorney negotiating a settlement after receiving a demand letter threatening a lawsuit under California state law, for example." Longstanding claims: Similarly, just because you've been making a certain claim for a long time doesn't mean that it's not exposing you to some risk, he said: "You should periodically review longstanding claims to ensure that they have not run afoul of contemporary legal standards being established by class action settlements."

Who is at risk?
As to who is most at risk of class action lawsuits, "everyone is at risk ," from large firms to small, said OFW Law associate Mason Weeda, who noted that SMEs are increasingly being targeted, in part because they are less likely to have the funds to mount a serious defence.

As such, they are more likely to settle, perhaps even before cases have been formally led.

"It's true that the bigger the target, the bigger the settlement," added Silverglade. However, smaller legal firms are increasingly targeting small to midsize food brands, he said: "If I'm a plaintiff's attorney, I may avoid larger companies as they generally have more legal resources. The point is, everyone is at risk."

Demand letters: 'The complaints in court are just the tip of the iceberg'
One issue that deserves more attention is the number of cases that never make it to court, but still end up costing food manufacturers money, said Silverglade.

"Hundreds of companies receive private demand letters threatening suits and settle before a public court case is ever led, but there's no way of knowing how many are out there. The complaints in court are just the tip of the iceberg, many are settled before a complaint is led.

"We've done an educated guestimate that probably for every case that ends up in court, roughly there are 10 other cases that were the subject of a private demand letter sent from a plaintiff class action attorney to a food company. So these are cases that were settled privately and never saw the light of day except in the food company's bank account, which paid the class action attorney, the fees and costs and the damages to settle the case."

Hardly any cases go to trial
As for cases that proceed through the courts, "virtually none " go to trial and get decided on the merits, he added: "The bottom line is that litigation is risky, costly, and relatively few defendants wish to proceed this far."

Once defendants get to the stage where their motion to dismiss a case has been denied, they can le a motion for summary judgement, and if that is denied, discovery would follow, he said. "But at this point in a case, significant costs have been incurred, typically more than $100,000 in legal fees… If you get to the class certification stage, in almost all cases, the lawsuits are settled, sometimes for multi-million-dollar sums.

"It's ultimately a business decision. If the claim is important to your business model, it may be worth investing several hundred thousand dollars to take a case all the way to the class certification stage, but the majority of cases are settled much earlier, or never even see the light of day…"

Detection methods for animal species in meat products

Species substitution in meat products is a common problem reported worldwide. Therefore, highly sensitive and efficient techniques are needed to detect meat species.

A study published in the Journal of Food Science examines a method based on real-time polymerase chain reaction (PCR) to detect 10 animal species in meat products. The method combines species-specific and universal (used here as internal positive control) primers, and applies melt curve analysis for amplicon checking.

The researchers selected seven meat species used for human consumption in Brazil (beef, pork, chicken, lamb, goat, turkey, and buffalo) and three meats possibly used in fraud (horse, dog, and cat). For method validation, the researchers prepared 45 experimental reference meat mixtures with tissues from two species in proportion of 50:50 or 99:1 (w/w). One mixture was prepared with meats from all species (10% [w/w] each). In addition, the performance of the method was also evaluated on 14 meat products (hamburgers, sausages, salami, smoked chicken breast, Canadian bacon, beef meat balls, and meat nuggets.

The researchers evaluated the method accuracy on 46 experimental meat mixtures and all species were correctly identified in all cases, at 1% test sensitivity. Analysis of 14 commercial meat products revealed that six of 14 samples had nondeclared bovine and/or chicken material. They performed an interlaboratory comparison using the reference meat mixtures and commercial samples, achieving 100% of reproducibility. The researchers concluded that "the method proposed here can play an important role in controlling the origin of meat products, ensuring their quality and safety for the entire food industry—producers to consumers."

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