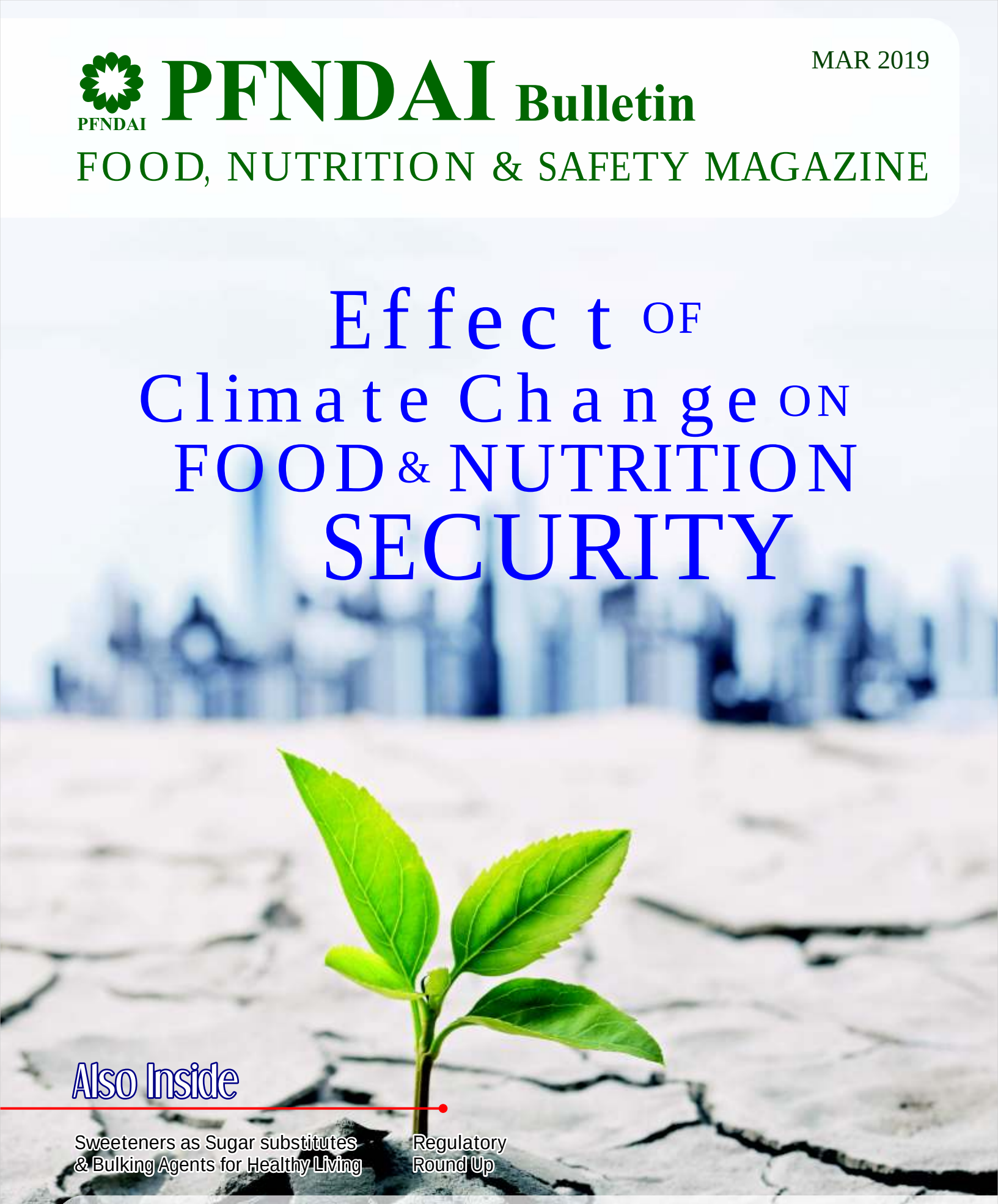
MAR 2019

PFNDAI Bulletin

FOOD, NUTRITION & SAFETY MAGAZINE

Effect OF Climate Change ON FOOD & NUTRITION SECURITY



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EDITORIAL

Indians are becoming quite aware of relation between physical activity and health. In this age of lifestyle change due to mechanisation and digitisation, people are getting very little physical activity and are getting many health problems. Besides nutrition, physical activity is one thing that can keep them healthy and people are going for walks; they are playing sports and encouraging their kids to play outside rather than watching TV or playing games on computers.

As there is very little open space in metro cities, they are now going to gyms and sports centres for walking on treadmills or using exercise bikes. This has been a boom time for such gyms and along with that there is a lot of demand for trainers who will help not only keep people fit but also advise young people on muscle building. Many young people are now working out so they would have a lot of muscles like body builders. The trainers not only advise them on training routines with weights etc. but also give them advice on what to eat and what not to.

Many such gyms are finding it difficult to stay profitable due to high cost of equipment, maintenance and more importantly the rent of the place. So owners normally try to find other means of raising resources and this is where many supplements come.

Many gyms have a good range of various protein powders and other supplements. Many of these contain 80% protein and if consumed properly with good guidance can really help people not only get good physique but also stamina and health. However, without proper control and supervision by a trained health professional these can cause a lot of harm to the individual. Some of them may also have prohibited substances and make a lot of tall claims of giving results in very short time.

Many gyms do employ trained nutritionists and dietitians from reputable institutes but quite often the trainers do not have proper training in nutrition and health. It is very essential that they are given a short course which will include the aspects of nutrition for sports persons which will enable them to impart not only training in weights but also adequate nutrition needed for the purpose.

There are some certificate courses of repute but offering only to degree holders in nutrition and dietetics. There are course which may not have backup of reputable health professionals and institutions and one does not know the fate of students. It is time that something is done in this respect.

Indian Dietetic Association could prepare a syllabus for such purpose and make it widely known so those interested in sports and physical activity. IDA could also collaborate with educational institutions in training those who would like to be trainers in gyms and sports clubs. Such courses could be designed for individuals who may not be science graduates but course itself could include adequate level of science input while imparting nutrition and health related subjects. Safety should be an important part of the syllabus which should be short enough to interest many. We feel this may go a long way in training those individuals who ultimately advise young and old who want to be fit and also eat properly and use supplements effectively and safely.

Prof Jagadish Pai,
Executive Director,
PFNDAI

Effect OF Climate Change ON FOOD & NUTRITION SECURITY

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Climate Change:

Climate change can occur naturally or due to various human interventions, through the emission of greenhouse gases such as carbon dioxide and methane, and from changes in land use. Climate change is expected to bring warmer temperatures; changes to rainfall patterns; and increased frequency, and perhaps severity of extreme weather leading to adverse effects.

Food Security:

According to the World Food Summit, "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life."

Food security has three important and closely related components, which are availability of food, access to food, and absorption of food. Availability of food in terms of having sufficient quantities of appropriate food available, access to food in terms ofhaving adequate income or other resources to access food and absorption of food in terms of having adequate dietary intake and the ability to absorb and use nutrients in the body. Climate change is expected to affect all of these components.

Effect of Climate Change on Food Security.

Climate Change plays a major role in threatening the food security and livelihoods due to several factors including increased frequency and intensity of climate hazards, lowering crop yields and reduced production in vulnerable regions, increased health risks, increasing water scarcity, etc. Changes in food production, together with other factors, could impact food prices, which would affect the ability of poor households to access food markets and could reduce dietary diversity. (cf. Schmidhuber and Tubiello, 2007).

In today's world, under nutrition is one of the most critical issues that is not efficientlyaddressed and is a socioeconomic threat. Climate change could actually add up more to this threat leading to a starving world. Every living thing needs a certain period of time to adapt to a particular type of climate.

Recurring climate changes limits the adaptation period of these living beings making them unstable. Similarly, there are impacts of climate change on crop productivity that eventually would lead to food unavailability, as this would disturb the whole food ecosystem putting under risk the food security. This would probably largely have adverse effects in the areas that are vulnerable to hunger and nutrition impairing the health of the individuals.

In addition, Climate Change tends to alter the variability of the crops and their cultivation methods, emerging diseases of human and animal, bringing about new risks for food safety and health. The Greatest Challenge of Climate change will be its impact on Food and Nutrition security and the way to manage them and is likely to have multiple environmental impacts affecting agriculture. Severe impacts on Agriculture would affect the productivity yield of the crops having consequences for food availability. This would largely affect the farmers very badly.

Climate-related risks affect calorie intake, particularly in areas where chronic food insecurity is already a significant problem. This eventually affects the Nutritional parameters of an individual through related impacts on food security, dietary diversity, care practices and health. Tackling hunger is one of the greatest challenges of all. Hunger has multiple dimensions and causes, ranging from deficiencies in macro- and micro-nutrients, through short-term shocks on food access, to chronic shortages. Causes range from constraints on the supply of food of sufficient quantity and quality and lack of purchasing power to complex interactions of nutrition with sanitation and infectious diseases leading to poor health. The impacts of climate change will have many effects on the global food equation, both for supply and demand, and on food systems at local levels where small farm communities often depend on local and their own production. Thus, climate change could potentially slow down or reverse progress toward a world without hunger.

Under climate change, the frequency and intensity of some disasters such as droughts, floods and storms could increase, with an adverse impact on livelihoods and food security. Climate-related disasters have the potential to destroy crops, critical infrastructure, and key community assets. Some of the impacts of climate change would be as follows:

• Severe and recurrent droughts with low availability of water for irrigation will result either in crop failures or lower yields.

• Excessive precipitation and cloud bursts and flash floods occurring prior to harvest could add to crop losses.

• Higher ambient temperatures, particularly for winter crops like wheat would reduce grain filling and lower the yield per hectare.

• Higher levels of atmospheric CO2 is likely to reduce the yields of C3 crops like rice, wheat, soy beans, peanuts etc. that cannot handle very high levels due to their inherent photosynthetic pathways.

The consequences of all these would be higher food prices, inability of classical agriculture to increase production and further worsening of malnutrition in the country (Krishnamurthy t al 2012-WFP).

➢ Droughts and Floods

Compositional changes in food crops are possible when flooding affects lands suitable for growing crops. This could either wipe out the nutrient rich top soil or bring contaminants from upstream industrial areas. When soil nutrients get depleted the plant nutrient profiles will be poorer resulting in qualitative changes in foods thus giving rise to nutrient deficiency despite food adequacy. Both drought and floods affect the production of fodder crops which are needed for livestock maintenance and cause a fall in meat and dairy outputs contributing to protein inadequacy. Under severe drought conditions pest attacks increase. This leads to higher pesticides use which in turn results higher residues leaving the food unsafe. This is also known to increase the pests getting resistant to the sprayed chemicals. (Khodaverdi H, 2016)

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A recent survey suggests that 73% of Indian diets are protein-deficient*. Part of the reason lies in the insufficiency of protein content in conventional protein sources such as eggs, lentils, milk etc. Moreover, the steep cost (per 100 gms of protein) of these sources makes it even difficult for families to fulfil their daily protein need. We at Ruchi Soya, the makers of Nutrela Soya Chunks, Mini Chunks and Soya Granules, help consumers bridge this gap by providing the richest source of protein at the most affordable price, which we call '52% Dhaakad Protein'. 200 grams of soya contains 52% protein which is equivalent to 15 bowls of cooked daal or 16 boiled eggs or 17 glasses of cow's milk. We urge you to make soya an integral part of your diet recommendations. Let us join hands to help India say a GOODBYE to protein-deficiency!

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*Source: The Times of India, July 2017

Loggerheads_2018

Advantages & Disadvantages of Various Strategies

STRATEGY	ADVANTAGES	LIMITATIONS
Short Term (Nutrient Supplementation)	Immediate Benefit Very Effective, if properly implemented.	Expensive, Needs Manpower, Inadequate/Irregular Supplies, Inadequate/Irregular Coverage, Non-compliance, Not Sustainable.
Long Term (Nutrition Education/ Dietary Diversification)	Desirable, Sustainable, No cost involved.	Difficult to achieve, Time consuming. Behavior change Better purchasing power
Medium Term (Food Fortification)	Easy, Cost effective, Good compliance, Sustainable, Easy to Regulate.	Risk due to several foods being fortified

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➢ Sea-level Rise

Rise in sea levels due to melting glaciers might cause flooding of coastal agriculture which may destroy the cultivated crops across the coasts. It may also lead to coastal erosion and soil salinity hat will lead to loss of agricultural productivity

Mitigation strategies to increase food productivity

- Increase area under cultivation
- Crop varieties adaptable to climate change
- Improve soil nutrition with appropriate agricultural practices
- Use modern biotechnology for quick results
- Lower greenhouse gases
- Minimize post-harvest losses

Climate Change as Risk for Nutrition:

Climate change affects the enabling environment for malnutrition reduction. A less favourable enabling environment for malnutrition reduction makes the underlying determinants of improved nutrition less effective. Unexpected and sometimes more severe weather changes disrupt the intermediate environments that are so important for good nutrition and climate change also affects people's food consumption by influencing local and global food availability (production, storage), quality (nutritional value and food safety), access (market policies and prices), and how the body utilizes food.

Conclusion:

According to FAO, Climate change intensifies the multiple burdens of malnutrition as a result of its effects on food security, public hygiene, water supplies and quality, food safety, and maternal and child health care. The most vulnerable are, and will continue to be, the most affected; those who depend on natural resources, as well as women and children. Working on the barriers that limit access to a healthy and diversified diet thus involves not only considering the food system as a whole, but also the health, social protection, risk management, and agricultural extension systems. Strategies must be aimed at reducing climate change and its impacts that exhibit synergies with interventions targeting improved food and human health with consistency in the policies that would be adopted.

Sweeteners as Sugar substitutes & Bulking Agents for Healthy Living

By
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Human desire for sweet taste spans all ages, races, and cultures.

The low cost and ready availability of energy-containing sweeteners especially sucrose (sugar) in the food supply has led to its popularity and choice of bulking agent in food products. The consumption of energy-containing sweeteners in the form of added sugars has risen consistently among all age groups globally. This has led to concerns on related life style diseases such as obesity, diabetes and decline in dental health of children. Public awareness has led to demand for sugar substitutes which in turn have resulted in evolution of high intensity low calorie sweeteners.

High intensity sweeteners have sweetness intensity much higher than sucrose (table 1). For example stevia extract is 250 times sweeter than sucrose[3]. In order to replace sweetness of sugar, miniscule amounts of these sweeteners will suffice. Only milligram quantities would be required to replace sweetness of 1 spoon of sugar. Bulking agents are required to deliver these sweeteners to consumers. The popular bulking agents are maltodextrins, polyols and recently lactose. These are described in greater detail.

Bulking agents for high intensity sweeteners

In addition to imparting sweetness to a food product, sucrose serves as a bulking agent, viscosity enhancer; aids in flavour development, colour development and functions as a preservative. Replacement of sucrose therefore requires a bulking agent in addition to a sweetener in the food product. Depending on the food product and its processing method, bulking agents could be different. Few potential bulking agents are discussed here.

Table1: Sweetness of commonly used high intensity sweetness as compared with sugar (sucrose)1

Sweetener	Relative sweetness
Sugar (sucrose)	1
Fructose	1.5-1.7
Aspartame	180
Acesulfame K	200
Stevia extract (Steviosides)	250-300
Saccharin	300
Sucralose	600
Thaumatin	3000

1. Maltodextrin

Maltodextrins are soluble material obtained after hydrolysis of starch (usually corn) using enzymes or acid for the process followed by purification and drying. This is the most economical bulking agent for high intensity sweeteners with cost slightly higher than sucrose.

Maltodextrins are of 2 types; digestible and resistant maltodextrins.

Digestible maltodextrins are low-sweet saccharide polymers consisting of D-glucose units linked primarily linearly with alpha-1,4 bonds, but can also have a branched structure through alpha-1,6 bonds. Often, maltodextrins are classified by the amount of reducing sugars present relative to the total carbohydrate content (DE or dextrose equivalent); between 3 and 20 percent in the case of digestible maltodextrins. It has a high glycemic index ranging from 85 to 105 so it should not be considered suitable for diabetics. It is often added as a thickener in sauces and gravy.

It can be used as a spray drying agent for fruit juice concentrates. It is used in soup powders, coffee whiteners and infant formulas. Also used in the pharmaceutical industry as a binding agent in pills. Maltodextrins help with the texture of hot cocoa powder mixes.

Benefits:

It appears to be useful for bodybuilders since it is provides glucose quickly on ingestion. It has certain properties which are useful in food manufacture, i.e. bulk and texture. It can be used to provide bulk to artificial sweeteners. Regardless of the source, i.e. wheat or corn, it contains no gluten, it is pure carbohydrate. Therefore it is suitable for persons with coeliac disease. It does not have its own taste or the cooling effect of polyols on the tongue.

Concerns:

• Harmful to teeth, Cariogenic.
• High glycemic index (85-105). Concern to diabetics or prediabetic person.
• It is a sugar and contains calories as much as sucrose.
• Low sweetness index (0.1-0.2). So does not enhance or support sweetness of high intensity sweetener

Digestion-resistant maltodextrin

(DRM) is also most commonly derived from corn and wheat (as well as rice and potatoes). DRM is created by putting maltodextrin through an additional process that changes the bonds which connect the sugar units. It is indigestible because our bodies do not have the enzymes necessary to break down the new bonds. Contrary to maltodextrin, DRM does not contain calories, so does not affect blood sugar levels. However, it still offers many of the benefits of soluble/digestible fiber.

There are broadly 3 types of resistant maltodextrins (RMD):
1. Treated forms of RMD: These types of maltodextrins are deliberately manufactured for use as a form of dietary fiber.
2. Traditional maltodextrins that are 'resistant': Some maltodextrins may have a chemical structure that provides them with resistance to human digestion; possibly due to the structures in native starch. These products may or may not have the additional physiological effects associated with dietary fibers, and are added for a technological purpose rather than as a deliberately added form of dietary fiber.
3. Inadvertent production of RMD: Some manufacturing processes (e.g. extrusion) can cause starch or digestible maltodextrins to gain resistance to digestion, and thus result in the appearance of RMD in a food.

Maltodextrin vs. Digestion-Resistant Maltodextrin

Maltodextrin has a high glycemic index, causing a rapid spike in blood sugar. Interestingly, this polysaccharide has been shown to raise blood sugar levels more rapidly than glucose. Research has also shown that maltodextrin promotes increased growth of unhealthy bacteria in the gut flora resulting in increased inflammatory properties, which is likely related to thesugar content. Similarly, for a person who has a chronic illness, such as diabetes, where maintaining stable blood sugar levels is important, maltodextrin may be a bulking agent in high intensity sweeteners that one should limit or avoid.

On the other hand Digestion Resistant Maltodextrin (DRM) ferments at a slower rate than maltodextrin, which helps minimize many of the negative side effects (e.g. bloating and flatulence). Unlike maltodextrin, DRM can behave as a prebiotic, promoting the growth of good bacteria in the intestine. In one study with a cohort of 66research participants, DRM was found to improve colonic transit time while also keeping their gastrointestinal system "regular" by adding bulk to their stools, maintaining balance in their consistency and frequency. DRM may be better at regulating blood sugar levels during and after meals by not causing as steep of a blood sugar spike when compared to regular maltodextrin. More importantly, DRM may not alter insulin levels, so may be abetter alternative than regular maltodextrin for individuals living with diabetes.

While DRM contains little to no calories, research has shown people who consume DRM feel fuller and more satiated for longer periods of time after eating. For example, in one study it was shown that volunteers who consumed a meal with 10g of a product that is classified as a DRM, felt more satiated for 1½ to 2 hours following their meal.

Table 2:Comparison between maltodextrins and resistant maltodextrins[2]

Parameter	Maltodextrin	Resistant maltodextrin
Glycemic Index	High	Low
Fiber effect	No	Yes
Calorific value	4 Kcals/g	1.7 Kcals/g
Solubility in water	Soluble	Soluble

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Polyol	Sweetness (sucrose=100)	Kcals/g	Melting point (C)	Solubility at 25C (g/100 g H2O)	Impact on blood sugar	Laxative effect
Xylitol	90-100	2.4	93-94.5	64	Very low	++
Sorbitol	50-60	2.6	93-112	72	Low	++
Mannitol	50-60	1.6	165 –168	18	low	+++
Lactitol	30-40	2.0	94-97	149	None	+
Maltitol	70-80	2.1	149-152	Easily soluble	Low	++
Isomalt	40-50	2.0	149-152	Easily soluble	None	+++
Erythritol	60-70	0.2	119-123	Easily soluble	None	+
Hydrogenated starch hydrolyzates	25-50	3.0	-	Easily soluble	Low	+

2. Polyols

Polyols also known as sugar alcohols are hydrogenated form of carbohydrate,in which carboxyl group either aldehyde orketone has been reduced to a primary or secondaryhydroxyl group, hence alcohol. They have the generalformula of H(HCHO)n+1H compared to sugars thathave H(HCHO)nHCO. Polyols are either whitecrystalline, slightly hygroscopic powders or clear syrup. Polyols such as sorbitol (E420), mannitol (E421), isomalt (E953), maltitol (E965), lactitol (E966), xylitol (E967), erythritol and hydrogenated starch hydrolysates (HSHs) are less sweet as compared to sugar and can provide bulk to product with a high intensity sweetener (table 3).They provide less energy weight than compared to sucrose while having the same bulk volume. The European Commission (EC) proposed a caloric value of 2.4 kcal/g, while the Federation of American Societies for Experimental Biology reported calorific values ranging from 1.6 to 3.0 kcal/g.

Among the benefits of polyols important is its non-cariogenic property since they are not metabolized by oral microorganisms and they require lower insulin levels for their metabolism. Also there is less absorption of utilizable energy, which is of benefit to individuals who become easily overweight.

The intake is restricted to 40 –50 g per dayfor adults and 30 g per day for children in order to avoidgastrointestinal discomfort. Higher doses may cause anosmotic diarrhea or increased flatulence due to slowabsorption and extensive fermentation, respectively,but tolerance levels improve upon adaptation. Higher doses cause flatulence due to slow absorption and extensive fermentation in the gut. The laxative and the glycemic response and threshold forvarious polyols are shown in table 3[3].

Among the polyols due to their molecular weight and melting point, maltitol and isomalt are the preferred bulking agents for sugar replacers. However xylitol is popular as sugar replacer in chewing gum and in toothpaste due to its sweetness and non-cariogenic properties. Xylitol is not popular as a bulking agent of sweeteners for food products due to its characteristic mouth-cooling effect. The benefits and challenges of different polyols is summarized in table.

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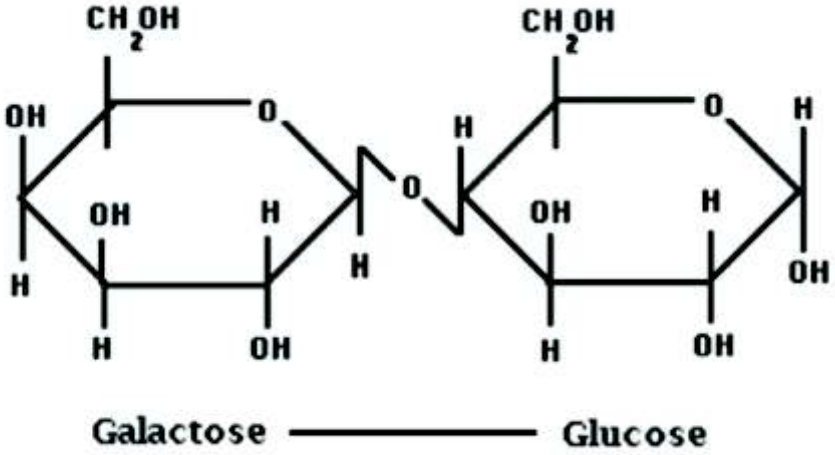
Polyol	Benefits	Challenges
Sorbitol	Humectancy	May result in undesirable softness in bakery products
Maltitol	Similar to sucrose	May crystallize
Isomalt	Suitable for candy and confectionery	Low in sweetness
Lactitol		
Xylitol	Sweetness and mouth cooling effect; suitable for chewy candy and toothpaste	

3. Other bulking agents:

Lactose

Lactose is a unique disaccharide made up of glucose and galactose (which are both monosaccharides). Mammalian milk is its only source[4].

Structure showing the glucose and galactose of lactose



Lactose is a byproduct of cheese manufacturing industry. From the whey, lactose is separated and whey proteins are concentrated to give whey protein concentrate powder. Lactose is crystallized and further purified for pharmaceutical grade product. Lactose is cheaper than polyols since it is a byproduct. Lactose is hydrolyzed to glucose and galactose by the enzyme lactase in the small intestine of mammals and is stable to acidic conditions. On hydrolysis lactose gives 4 Kcals per gram. The glycemic index of lactose is 46 and thus falls in the low GI group of bulking agents along with polyols. Sweetness of lactose is about 20% of that of sucrose.

In contrast to the other nutritionally important disaccharides, the β-glycosides maltose and sucrose, lactose is a β-glycoside.The digestive capacity of the normal human small intestine varies for different sugars. Total maltase (to hydrolyze maltose) and sucrase (to hydrolyse sucrose) activity is usually higher than lactase activity.

Undigested lactose passes into the gut or colon.In the colon, undigested di and oligosaccharides such as lactose are metabolized to monosaccharides, short-chain fatty acids, and finally to gaseous compounds, mainly carbon dioxide and hydrogen. Adult mammals usually do not have access to milk in their natural environment, and their lactose digestion capacity declines after weaning. In the majority of humans there is a gradual decline of lactase activity synchronized with the completion of weaning, to levels which vary between 5 and 20% of that in the newborn period. This low level is maintained throughout adult life and cannot be changed significantly by artificial feeding with lactose-containing diets or even parenteral administration as proved with scientific evidence.

Adults with persistent lactase activity and correspondingly high lactose digestion capacity are common in only a few populations where milk is the primary source of nutrition such as African nomadic tribes whose accessibility to milk is more than cereals as food.

Lactose intolerance is the syndrome of diarrhea, abdominal pain, flatulence, and/or bloating occurring after consumption of food that contains lactose. Many variables such as the quantity of lactose ingested in one serving, the residual intestinal lactase enzyme activity, the ingestion of food along with lactose, the ability of the colonic microorganisms to ferment ingested quantity of lactose, and individual sensitivity to the products of lactose fermentation (other than glucose) are important for the severity of the symptoms. The available evidence suggests that adults and adolescents who have been diagnosed with lactose malabsorption could tolerate at least 12 grams of lactose when administered in a single dose (equivalent to the lactose content found in 1 cup of milk) with no or minor symptoms. Individuals with lactose malabsorption can tolerate larger amounts of lactose if ingested with meals and distributed throughout the day. However, 50 grams of lactose (equivalent to the lactose content found in 1 quart of milk) usually induces symptoms in those adults with lactose malabsorption when administered as a single dose without meals[5].

Conclusion:

The bulking material for sugar substitutes play an important role in sugar substitution since the high intensity sugar replacer is used in minor quantities. The choice of the bulking material could depend on the application of the product either as a table top sweetener or sugar replacer in processed food. The product in addition to health benefits for the customer also requires mimicking of processing characteristics of sucrose to be useful as a sugar substitute.

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Advertising Standards Council of India

By
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Chairman, Regulatory Affairs Committee, PFNDAI

Introduction:

Established in 1985 at Mumbai, the Advertising Council of India (ASCI) is a self regulatory voluntary body to promote responsible advertising. The ASCI has been set up with the same objective as that of the Advertising Standards Authority (ASA) a body governing the advertising standards of the UK.

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c. Members of the Press and Broadcasters,
d. Consumers, PR Agencies, Market Research Companies and Consumer Protection Groups.
ASCI has a Board of Governors (BoG) for providing policy guidance, a Consumer Complaints Council (CCC) that decides on complaints received by ASCI and a Secretariat. Board of Governors has 16 members, four each representing the key sectors such as Advertisers, advertising agencies, media and allied professions such as market research, consulting, business education etc. The CCC currently has about 21 members of which 12 are non-industry and are from the civil society like well-known doctors, lawyers, journalists, academicians, consumer activists, domain experts etc. The CCC's decision on complaint against any advertisement is final. ASCI has its own Secretariat which is headed by the Secretary General who is responsible for its day to day administrative functioning apart from liaison with the BoG and CCC.

Objective:

ASCI has been formed to ensure that Advertisements aired / printed in any form conform to its Code for Self-Regulation, which requires advertisements to be legal, decent, honest and truthful and not hazardous or harmful while observing fairness in competition. ASCI looks into complaints across ALL MEDIA such as Print, TV, Radio, hoardings, SMS, emailers, Internet/web-site, product packaging, brochures, promotional material and point of sale material etc.

The ASCI code prohibits advertisements that fall in to any one or more of the six parameters:
1. False Advertising
2. Indecent Advertising
3. Advertising leading to unsafe practices
4. Illegal Advertising
5. Advertisement unfair to competition
6. Misleading Advertising

Complaints:

In order to keep a check on the Ads the ASCI has set up a National Advertising Monitoring Service (NAMS). NAMS keeps a check on the Ads which are put before the public through the various media platforms all over India are monitored by Ad Executives and trained personnel of ASCI. The CCC deals with complaints from consumers/industry/referred to the government against advertisements which are in contravention of the ASCI Code. The CCC also takes suo moto action.
Majority of the complaints in which the CCC has taken action are on the following industry sectors:
1) Education / coaching class advt.
2) Health, home and personal care
3) Food and Beverages
4) Advertisements targeting children

Lodging a Complaint:

In order for a complaint to be lodged before ASCI the complaint should contain the details of the the Advt., the channel / publication where it appeared, Product details / labels, the Company / Advertiser against whom the complaint is being lodged. A complainant has various medium to lodge a complaint before ASCI such as:

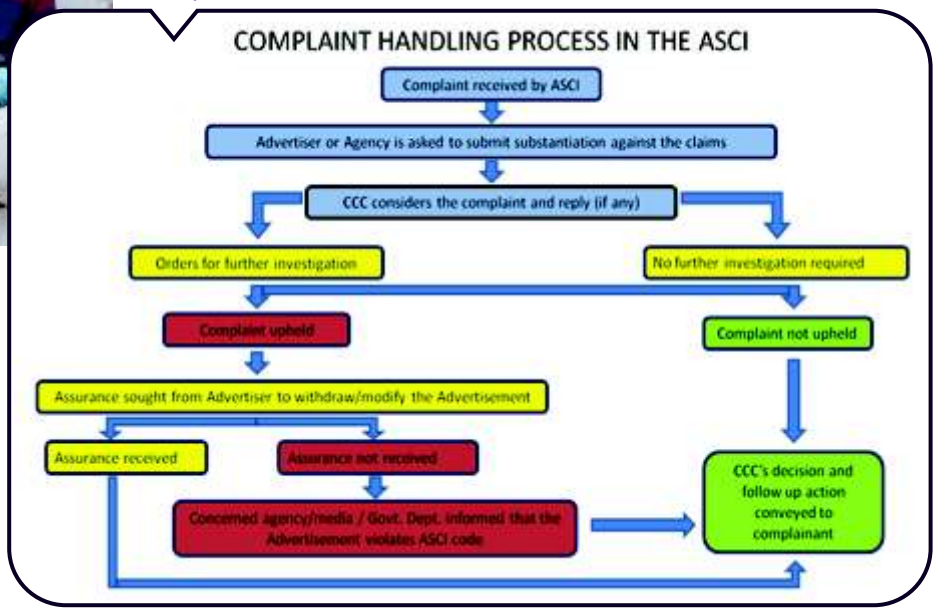
1) Telephonically through the National Number 1800222724
2) Via the website https://ascionline.org/index.php/lodge-ur-complaints.html
3) On the Application: "ASCIOnline" available on Play Store for Android Devices as well as AppStore for Apple Devices
4) Via email on contact@ascionline.org
5) Via Whatsapp on: +91 7710012345

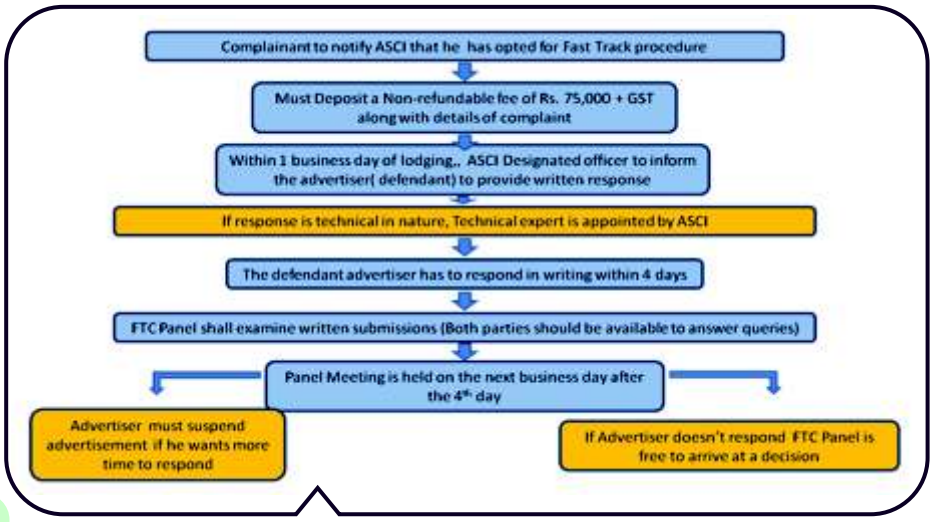
There are two kinds of complaints which can be lodged before ASCI

S. No	Complaint Type	Fee
1.	Normal	N/A
2.	Fast Track	100,000/- (+GST)

Copies of the labels and television clippings of the advertisement if not in English, need to be translated in English before submission. The details of the Complaint and Complainant are not divulged to the Advertisers unless for the fact that it is an Inter- Corporate complaint. Upon receipt of the complaint the advertisers are given an opportunity to remove the ad so the proceeding for the hearing need not be held.

Complaint Procedure:





Fast Track Procedure:

The Fast Track Complaint Procedure is usually availed by members of the industry and matters between members of ASCI only.

The decision in the case of a fast track complaint is adjudicated by the Fast Track Complaint Council (FTCP). The FTCP shall within seven working days of filing the complaint with the relevant materials.

Who can file a Fast Track complaint??:

1. The applicant / complainant and the respondent should be members of ASCI.
2. The complainant should not have subscription dues pending

3. No pending Litigation in any court or other judicial / quasi judicial forum is there against the Respondent in the respect of the subject matter of the complaint

4. If the complainant has not complied with any recent CCC orders then he is not eligible to complain.

India's first Manufacturer of Speciality Oils & Fats

Health and Taste - Range of Trans Free Products

Advanced R&D / CI Centre - Superior Technical Support

Excellence in Service

Tailor made products for special end use applications

FSSC 22000 Certified

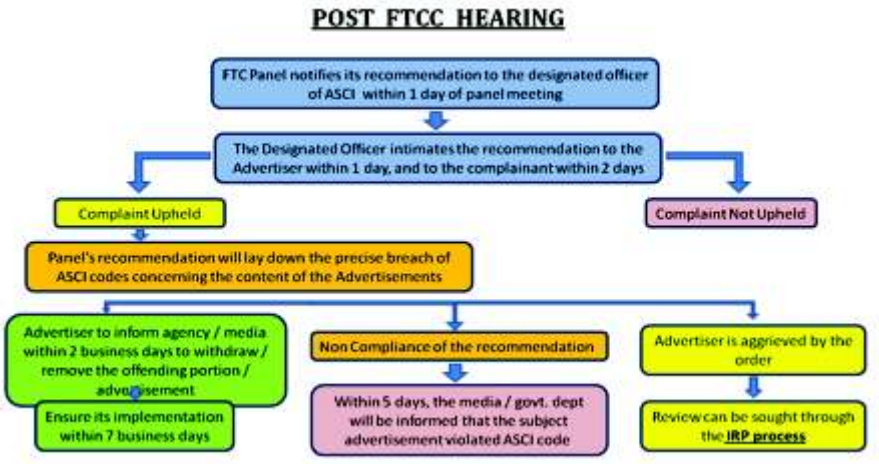
- Bakery Fats
- Culinary & Speciality Frying Oils
- For Ice-Cream / Frozen Desserts
- Confectionery Fats
- Oils & Fats for Nutrition / Cosmetics / Pharma

AAK KAMANI Private Limited
(Formerly Kamani Oil Industries Pvt. Ltd.)

B2 – 207, Kanakia Boomerang, Chandivali Farm Road,
Near Chandivali Studio, Andheri (E), Mumbai - 400072
Ph. : 62110191 I Fax : 022 - 28478805
E-mail : sales.in@aakkamani.com I www.aakkamani.com
Connect with us on : YouTube LinkedIn

AAK KAMANI

The Value Adding Partnership
The Co-Development Company

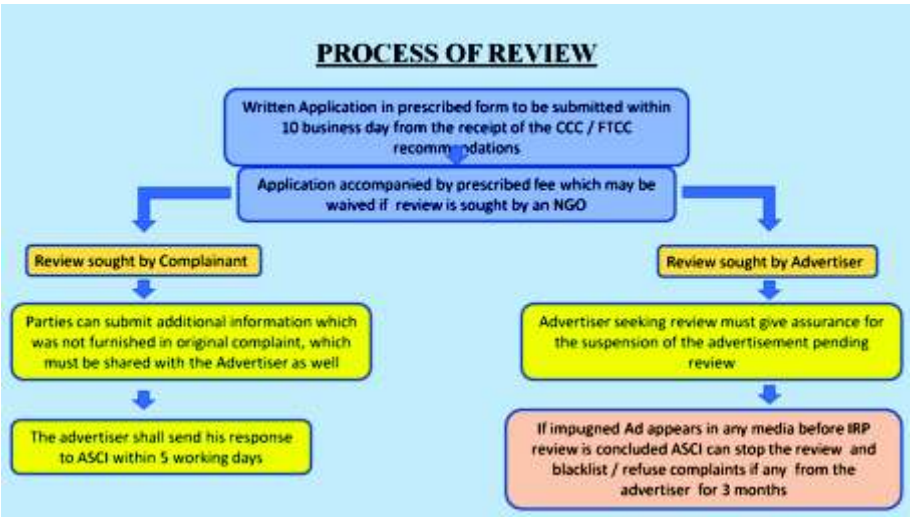


Independent Review Process:

ASCI provides both parties with the option to seek a review of the recommendations made by the CCC and the FTCC. A review is helmed by the Chairman who is normally retired Judge of the Supreme Court or the High Court assisted by the Secretary General/Chief Complaints Officer/Chief Administrative Officer of ASCI who is familiar with the proceedings.

The review process shall not be admitted if the party asking for review did not participate (exparte) in the initial proceedings of the CCC / FTCC. Such request for review shall be re-examined by the CCC itself.

Review Process Flow:



Recent ASCI Decisions

1. Complaint Filed Against a leading company manufacturing and marketing cosmetics products. For one of its products the company claimed that its products contain certain ingredients that repairs 100% of pollution damage.
Decision: The CCC found that the advertisement was inadequately substantiated. ASCI held that the advertisement was misleading by implication and exaggeration.

2. In another complaint, a leading consumer goods company's advertisement created an impression that one of its products is recommended by doctors.
Decision: Medical Ethics Code prohibits doctors from endorsing any product in absence of market research data. ASCI held that the visual representation was considered to be misleading by ambiguity.

Advertisements with Unsafe Practices

In another advertisement a leading celebrity endorsing the brand was seen throwing a stone at a tree and the stone breaking a window.
ASCI held that such advertisements encourage unsafe practices among children thus terming the ad as an unsafe and dangerous practice that manifests into a disregard for safety.

In an another advertisement the protagonist is seen running dangerously on the railway platform. ASCI held that the advertisement shows a dangerous practice that may influence minors to emulate such acts.

In another TV commercial the protagonist was seen along with his friends form a human pyramid and then fall from the second floor of the building; to the ground which turns into a swimming pool. ASCI held that the ad shows a disregard for safety and encourages negligence. The Ad deemed to be unsafe and dangerous.


Image © iStockcom/Littlebee80

ASCI and Comparative Advertisements:

Chapter IV of the ASCI Code deals with Comparative Advertisements. As per Chapter IV ads containing comparisons with competing manufacturers and sellers are permissible if the following parameters are met:

1)Advertiser's product is being compared with similar aspects of competitor's product.

2)The comparison should not suggest falsely that the advertiser's product is better.

3)A consumer should not be mislead due to the comparison.

4)The ad should not unfairly denigrate attack or discredit other products, its advertisers or advertisements directly or by implication.

Hence an advertisement urging competitors to follow a particular good practice of the advertiser cannot be held to be disparaging.

Jurisdiction of ASCI

In Procter and Gamble Home Products Pvt. Ltd. Vs Hindustan Unilever Ltd., the Delhi High Court discussed the jurisdiction of ASCI. The Court held that ASCI has been established as a self-regulatory body in the field of advertising. The Court observed that it can only recommend the advertiser to remove the advertisement but has no mechanism to compel removal of the advertisement. The Court held that ASCI can grant relief and award damages.

However to what extent this is legally tenable and has been put in to use is debatable.

In Metro Tyres Ltd. Vs The Advertising Standards Council of India and Anr.

The Delhi High Court observed that the district Court's power to adjudicate infringement cases within advertisements does not operate as an embargo to ASCI adjudicating upon claims of infringement. The Court grounded its judgment in the desirability of vesting self-regulatory bodies with greater powers in order to enable them to function as efficacious alternative dispute resolution mechanisms.

The above two judgements must be seen only from the context of the courts desire to grant more power to and the credibility ASCI has assumed over the years.

Conclusion

ASCI is playing an important role in ensuring responsible advertising. It has not only gained the respect of the advertisers but also that of many Government Departments who many a times directs the ASCI to inquire in to a complaint forwarded by it. . What it lacks by legal enforcement authority, it has been able to enforce its authority through self regulation/voluntary compliance. The complaints are resolved in an efficient and expeditious manner and with limited cost compared to lengthy costly legal proceedings.

Despite presence of tribunals under the Food and Drug Administration, Food Safety Standards Authority of India and Consumer Forums / Courts, the consumers are not getting fast and effective relief. Additionally in the case of inter corporate disputes involving disparagement / unfair comparison ASCI has proven to be a very good arbitration mechanism. With proper infrastructure and technical and legal expertise, ASCI can be an effective alternate dispute resolution body to address unfair advertising practices and false claims and thus help the consumers take a well informed decision while buying goods/availing services.

Nutrition Awareness Activity

at SNDT WOMEN'S UNIVERSITY, PUNE,

on TUESDAY 12TH FEB 2019

Report By

Dr.Chandrakala Mannuru, &
Associate Professor & Head,
Department of Food Science & Nutrition
SNDT Women's University, Pune

Ms.Anuja Rawool,
Food Scientist,
PFNDAI

The Nutrition Awareness Activity at Pune was organised by Department of Food Science & Nutrition, SNDT Women's University, Pune in collaboration with Protein Foods and Nutrition Development Association of India (PFNDAI) on February 12, 2019 at Tarapore Hall, SNDT College of Home Science Pune. The Activity was supported by Ruchi Soya, Kellogg India and AAK Kamani. The theme for the activity was ''Choose Wise Eat Right''.

Participation in the activity was appreciable as 163 students and several staff members participated wholeheartedly in the event. From the food industry, representatives of Ruchi Soya, Tata Chemicals and nutritionist attended the event.

The morning was devoted to intercollegiate competitions among students. Students from eight colleges participated in different competitions – Three competitions were organized: Quiz, Food Photography and Recipe Competition.

The theme for the entire activity was Proteins for Health. Many students took part in all the competitions. For the recipe competition, the theme was protein-rich recipes from Soya where the Soya Granules and Chunks were sponsored by Ruchi Soya Industries. The first, second and third prizes for these was sponsored by PFNDAI and Ruchi Soya, respectively.

There were many entries for the recipe competitions. The number of entries for the various competitions was:
The number of entries for various competitions was

1. Nutrition Quiz – 32

2. Food Photography – 32

3. Recipe competition – 49

All the judges for the three competitions were highly appreciative of the efforts made by the students. The quiz was very well organized and the audience also enthusiastically participated in this activity.

The Recipe Competition was judged by 2 judges
1. Dr. Malathy Venkatesan, Tata Chemicals
2. Mrs. R. Kapila, Nutritionist.

The Food Photography Competition was judged by 2 judges
1. Dr. B. L. Satyanarayana, Food Technologist.
2. Dr. Shilpa Shirole, Sr.Dietitian.

The 3rd Nutrition Quiz Competition was judged by 2 judges
1. Dr. Geeta Dharmatti – Nutritionist
2. Dr. Prabhakar Kanade – Food Technologist

The Winner for the Recipe Competition: Healthy Soya Recipe

Prize	Name of the Student	Name of the College	Name of the Recipe
1st	Harshada Kale	SNDT College of Home Science	Spicy Soya Cake
2nd	Kiran Achari	SNDT College of Home Science	Soya Tikki
3rd	Shriya Kotwal	NAFARI	Soya Kebab

Image © iStock.com/Talaj

Image © iStock.com/NanoStockk

VISTA PROCESSED FOODS PVT. LTD
(An OSI Group Company)

Supplier to Quick Service Restaurant (QSR)

Registered Office:
M-75, MIDC Industrial Area, Taloja,
Panvel, Dist. Raigad
Maharashtra—410 208
Tele . 022-7412299/2399/27402266
Fax : 022-7402288
Country website : www.vista-osi-group.com
Global Website : www.osigroup.com

The Winner for the Food Photography Competition

Prize	Name of the Student	Name of the College
1st	Madhura Shah	SNDT College of Home Science
2nd	Rachita Gupta	Communication Media for Children
3rd	Ganesh Jakhar	NAFARI

The Winner for the 3rd Nutrition Quiz Competition

Prize	Name of the Student	Name of the College
1st	Zainab Bagwan Pratibha Nadar	SNDT College of Home Science
2nd	Shubhangi Verma Vyshnavi Vodapalli	SNDT College of Home Science

The Quiz was well organized by Mrs. Anuja Kinikar, Mrs. Shraddha Patankar, Ms. Shraddha Adsul, teaching faculty SNDT College of Home Science.

TECHNICAL SESSION

In the afternoon, a seminar was wherein various experts were invited to speak on selected topics. The seminar started with a brief welcome address by Dr.Chandrakala Mannuru, Head Dept of Food Science and Nutrition, SNDT College of Home Science. Ms.Swechha Soni, Nutritionist PFNDAI introduced the delegates about NAA and the programs conducted by PFNDAI.

The first speaker was Mrs.Shilpa Joshi – Consultant Dietitian & Diabetic Educator spoke on Psychology of food choices, food purchase and eating behavior wherein she spoke on higher risk of developing obesity, genetic and environmental factors are important in the etiology of obesity. Experimental studies on food consumption among adolescents routinely find that caloric information or nutrition is not a major consideration in food selection. Taste, hunger, peer preferences and other factors appear to be more important.

The second speaker, Dr. J. I. Lewis, Vice Chairman, Regulatory Affairs committee, PFNDAI, discussed the Nutrient and Health Claims. He outlined the framework of Claims where Nutrition Claims maybe about nutrient content or nutrition comparative one. On the other hand, Health Claims specify about the nutrient function, other beneficial effects and disease risk reduction. He differentiated between the Claims spectrum- Nutrient Content, Nutrient Comparative, Statement of fact, which is not a nutrient content Claim, Dietary Guidelines, Nutrient Function, Other function, and Disease risk reduction

The third speaker Dr.Priyali Shah, Tata chemicals, spoke about the validation of claims by clinical studies. She gave an explanation about planning a Clinical Study &its study design what are the outcome measures. She also overviewed about the Test Product & Suitable Control Selection and what are the Implication of Clinical trails

Ms.Anuja Rawool, Food Scientist PFNDAI was the last speaker of the day spoke about the "Benefits of Soy Protein". Her presentation highlighted the protein gap in India and causes for the same. She described in considerable detail the health benefits of including soy protein in general and for women and children.

The seminar was followed by prize distribution to the student winners of the three competitions. The prizes were given away by the Executive Director, PFNDAI and the speakers.

The program ended with the vote of thanks by Mrs. Anuja Kinikar, Sr. Faculty, SNDT College of Home Science.

Judges Ms. Shilpa Shirole and Dr. Geeta Dharmatti with Ms. Swechha Soni and Ms. Anuja Rawool

Nutrition Awareness Activity at Sndt Women's University, Pune on Tuesday 12th Feb 2019


Dr. Anuja Kinikar


Ms. Shilpa Joshi


Dr. J. I. Lewis


Dr. Priyali Shah


Dr. Chandrakala Mannuru


Ms. Anuja Rawool


Ms. Swechha Soni


Audience


Audience

Judges Dr. Kanade, Dr. Satyanarayana, Dr. Malathy, Mrs. Kapila with Organisers

Winners being Awarded

Audience

Audience

REGULATORY ROUND UP

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

Dear Readers

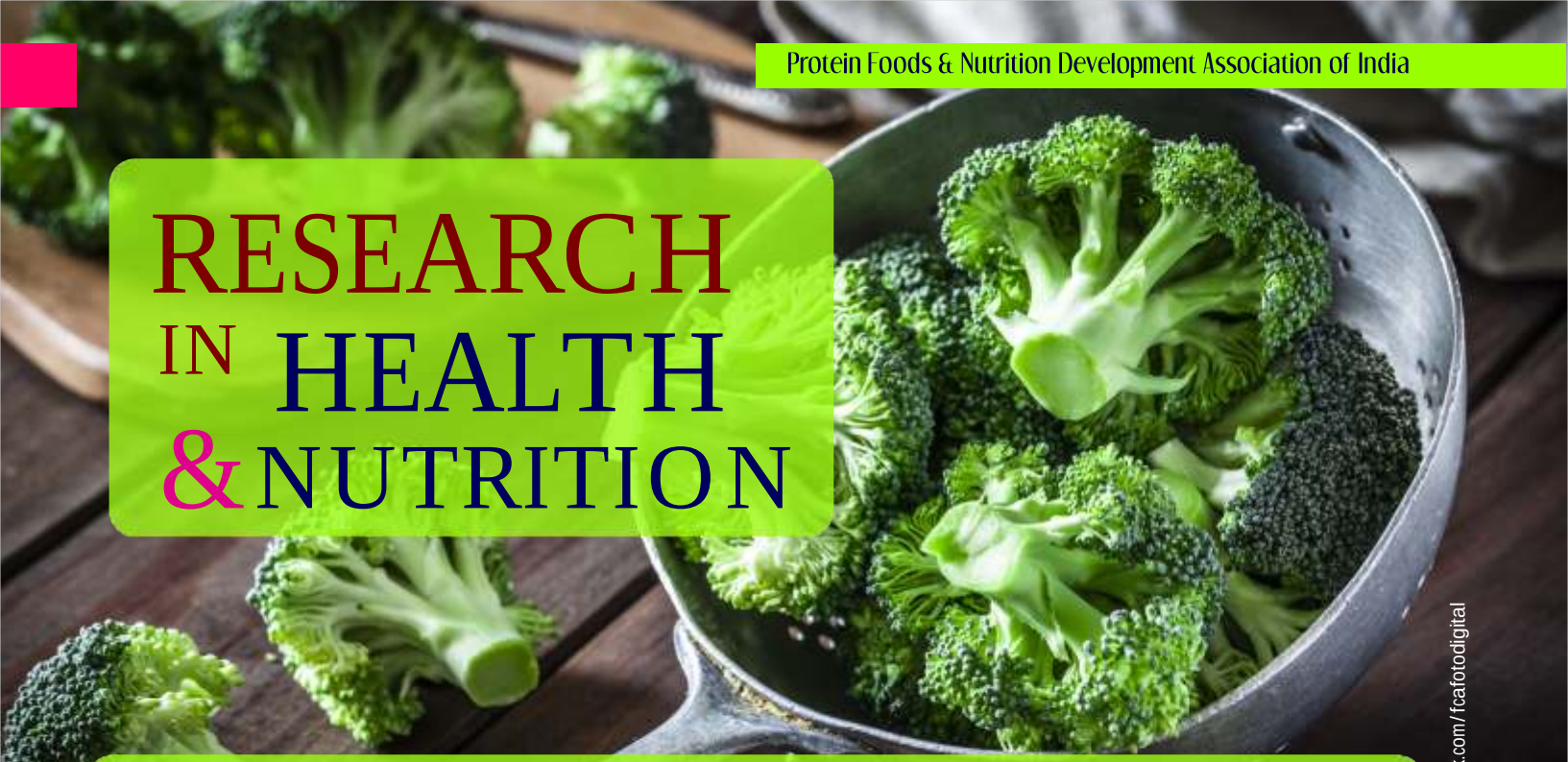
Please find below the summary and the link to regulations, order, etc published by FSSAI since the last round up. Hope you have sent in the comments and suggestions on the Processing Aid draft regulation.

FSSAI in the recent past issued an order with regard to the disposal of used cooking oil. The order required that oil with more than 25% Total Polar Matter (TPM) is not reused and such oils are to be handed over to State Government authorized dealers. The disposal requirement is valid for anyone who uses more than 50 kg per day. Records ,in prescribed format, of such disposals to be maintained. The implementation of the above order will be from 01 June 2019. The postponement is essentially to give State Government more time to identify and establish authorized agencies to collect and dispose used cooking oil.

Amendments to the Licensing and Registration regulation is operationalized. It includes amendments in Schedule IV (Good Manufacturing Practices), conditions for license to restaurant and licensing of e commerce entities. These amendments have been operationalized since 2017 but not notified as a final regulation. E commerce licensing is already introduced in on line FLRS.

A draft Meta study on the overall situation of Analytical Laboratories, both private and government, in India. The study, state wise, categorizes the laboratories based on many parameters like accreditation, testing capabilities, food categories that can be tested, etc. The study concludes with the major challenges and probable solutions. The readers are encouraged to go through the study as it has wealth of information.

Latest list of FSSAI approved laboratories. The list specifies validity date of accreditation, types of test for which the laboratory is recognized for, etc. Have a look at the list before you send the sample for analysis next time.



RESEARCH IN HEALTH & NUTRITION

Image © IStock.com/fcafotodigital

Scientists create broccoli extract that kills cancer cells

IFT Next Jan 1, 2019

A team of scientists in the department of biochemistry at National University of Singapore Yong Loo Lin School of Medicine have engineered a concoction made from bacteria and broccoli that finds and destroys colorectal cancer cells.

Cruciferous vegetables such as broccoli and Brussels sprouts contain plant compounds that have anticancer properties when they are broken down. However, it is unclear how effective those compounds are after they enter the human digestive system. Scientists at National University of Singapore's school of medicine found a way to improve the bioavailability of the anticancer plant compounds in broccoli by combining them with a type of bacteria normally present in the colon:Escherichia coli Nissle. "We programmed E. coli Nissle to enable colorectal cancer cell-binding so that the reprogrammed E. coli can specifically recognize and localize on the surface of tumors," says Matthew Wook Chang, an associate professor at National University of Singapore and a co-author of the study explaining the discovery. "Furthermore, we included in the E. coli the ability to produce an enzyme from horseradish to convert a dietary compound from cruciferous plants … to an anticancer compound." The enzyme converts glucosinolates in broccoli (and other cruciferous vegetables) to sulphoraphane, which is known to have anticancer activity.

Chang and his research colleagues showed that the engineered cocktail could inhibit the proliferation of colorectal cancer cells in vitro. "The microbial cells are able to recognize cancer biomarkersand localize on the surface of cancer/dysplastic tissue. Following this binding, the produced enzyme facilitates theconversion of the dietary compound around the cancer site to enhance availability of the anticancer compound, thus increasing absorption of the anticancer compound by the cancer tissue. Consequently, the proliferative cancer cells undergo cell-cycle arrest, … inhibiting the cancer growth. The anticancer compound also increases pro-apoptotic factors and decreases anti-apoptotic factors, hence encouraging the cancer cells to naturally perish," Chang explains.

Chang says that the engineered cocktail could be used to help reduce the risk of colorectal development in high-risk populations. "These probiotic cells could be ingested as a supplement or a drink, which could allow the probiotic cells to monitor the state of the gut and target cancer cells in their early stages," Chang concludes.

High intake of dietary fibre and whole grains associated with reduced risk of non-communicable diseases

Science Daily January 10, 2019

People who eat higher levels of dietary fibre and whole grains have lower rates of non-communicable diseases compared

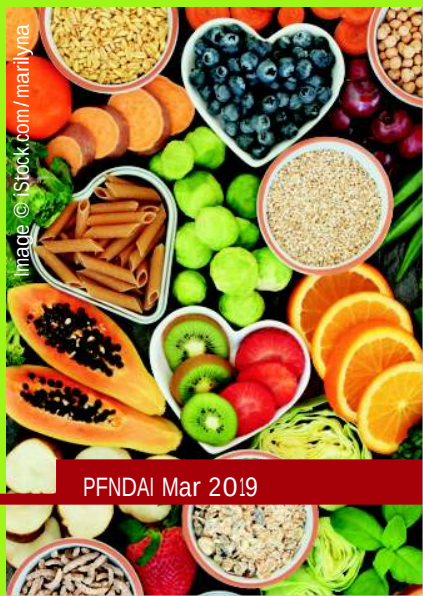


Image © iStock.com/marilyna

Saffola™ masala oats

Mumbai Pav Bhaji ka mazaa ab oats mein.

For creative representation only.

Ready in 3 minutes

[1]Research shows that diets high in fibre help in weight management. Oats are a high fibre wholegrain breakfast and hence a smarter option than refined cereals. Saffola encourages you to exercise regularly, follow a healthy lifestyle and consume a diet low in saturated fat, cholesterol and sodium to keep your body fit.

with people who eat lesser amounts, while links for low glycaemic load and low glycaemic index diets are less clear.

Observational studies and clinical trials conducted over nearly 40 years reveal the health benefits of eating at least 25g to 29g or more of dietary fibre a day, according to a series of systematic reviews and meta-analyses published in The Lancet. The results suggest a 15-30% decrease in all-cause and cardiovascular related mortality when comparing people who eat the highest amount of fibre to those who eat the least. Eating fibre-rich foods also reduced incidence of coronary heart disease, stroke, type 2 diabetes and colorectal cancer by 16-24%. Per 1,000 participants, the impact translates into 13 fewer deaths and six fewer cases of coronary heart disease.


Image © iStock.com/marilyna

In addition, a meta-analysis of clinical trials suggested that increasing fibre intakes was associated with lower bodyweight and cholesterol, compared with lower intakes. The study was commissioned by the World Health Organization to inform the development of new recommendations for optimal daily fibre intake and to determine which types of carbohydrate provide the best protection against non-communicable diseases (NCDs) and weight gain.

Most people worldwide consume less than 20 g of dietary fibre per day. In 2015, the UK Scientific Advisory Committee on Nutrition recommended an increase in dietary fibre intake to 30 g per day, but only 9% of UK adults manage to reach this target. In the US, fibre intake among adults averages 15 g a day. Rich sources of dietary fibre include whole grains, pulses, vegetables and fruit. "Previous reviews and meta-analyses have usually examined a single indicator of carbohydrate quality and a limited number of diseases so it has not been possible to establish which foods to recommend for protecting against a range of conditions," says corresponding author Professor Jim Mann, the University of Otago, New Zealand. "Our findings provide convincing evidence for nutrition guidelines to focus on increasing dietary fibre and on replacing refined grains with whole grains. This reduces incidence risk and mortality from a broad range of important diseases."

The researchers included 185 observational studies containing data that relate to 135 million person years and 58 clinical trials involving 4,635 adult participants. They focused on premature deaths from and incidence of coronary heart disease, cardiovascular disease and stroke, as well as incidence of type 2 diabetes, colorectal cancer and cancers associated with obesity: breast, endometrial, esophageal and prostate cancer. The authors only included studies with healthy participants, so the findings cannot be applied to people with existing chronic diseases.

For every 8g increase of dietary fibre eaten per day, total deaths and incidence of coronary heart disease, type 2 diabetes and colorectal cancer decreased by 5-27%. Protection against stroke, and breast cancer also increased. Consuming 25g to 29g each day was adequate but the data suggest that higher intakes of dietary fibre could provide even greater protection.

For every 15g increase of whole grains eaten per day, total deaths and incidence of coronary heart disease, type 2 diabetes and colorectal cancer decreased by 2-19%. Higher intakes of whole grains were associated with a 13-33% reduction in NCD risk -- translating into 26 fewer deaths per 1,000 people from all-cause mortality and seven fewer cases of coronary heart disease per 1,000 people. The meta-analysis of clinical trials involving whole grains showed a reduction in bodyweight. Whole grains are high in dietary fibre, which could explain their beneficial effects.

The study also found that diets with a low glycaemic index and low glycaemic load provided limited support for protection against type 2 diabetes and stroke only. Foods with a low glycaemic index or low glycaemic load may also contain added sugars, saturated fats, and sodium. This may account for the links to health being less clear. "The health benefits of fibre are supported by over 100 years of research into its chemistry, physical properties, physiology and effects on metabolism. Fibre-rich whole foods that require chewing and retain much of their structure in the gut increase satiety and help weight control and can favourably influence lipid and glucose levels. The breakdown of fibre in the large bowel by the resident bacteria has additional wide-ranging effects including protection from colorectal cancer." says Professor Jim Mann.

Commenting on the implications and limitations of the study, Professor Gary Frost, Imperial College London, UK, says, "[The authors] report findings from both prospective cohort studies and randomised controlled trials in tandem. This method enables us to understand how altering the quality of carbohydrate intake in randomised controlled trials affects non-communicable disease risk factors and how these changes in diet quality align with disease incidence in prospective cohort studies. This alignment is seen beautifully for dietary fibre intake, in which observational studies reveal a reduction in all-cause and cardiovascular mortality, which is associated with a reduction in bodyweight, total cholesterol, LDL cholesterol, and systolic blood pressure reported in randomised controlled trials... There are some important considerations that arise from this Article.

First, total carbohydrate intake was not considered in the systematic review and meta-analysis... Second, although the absence of association between glycaemic index and load with non-communicable disease and risk factors is consistent with another recent systematic review, caution is needed when interpreting these data, as the number of studies is small and findings are heterogeneous. Third, the absence of quantifiable and objective biomarkers for assessing carbohydrate intake means dietary research relies on self-reported intake, which is prone to error and misreporting. Improving the accuracy of dietary assessment is a priority area for nutrition research. The analyses presented by Reynolds and colleagues provides compelling evidence that dietary fibre and whole grain are major determinants of numerous health outcomes and should form part of public health policy."

Image © iStock.com/sorendls

Quinoa compounds may slow aging process

IFT Next Jan 1, 2019

The fountain of youth may be embedded in quinoa seeds, according to a recent study.

Researchers at Rutgers University and North Carolina State University (NCSU) used an unusual animal model to determine whether phytonutrients found in quinoa seeds could slow the aging process. "We all know that eating plenty of fruits and vegetables benefits our health, but once committed to the dietary change, is there anything else we can do to further improve our nutrition?" asks study co-author Slavko Komarnytsky, an associate professor at NCSU's Plants for Human Health Institute.

He and his collaborators from Rutgers University are attempting to answer that question by studying the metabolic effects of quinoa compounds. "Quinoa contains all essential amino acids, [so] its protein is complete and particularly beneficial for those whose diets are low [in] animal protein," Komarnytsky says. "Quinoa is unique in being one of the few foods high in dietary ecdysteroids that exert positive effects on metabolism and energy balance, especially on muscle, bone, and skin."
Aging involves more than just sagging skin, wrinkles, and loss of muscle; it also involves the decline of energy metabolism and mitochondrial function. Komarnytsky and his colleagues used an animal model that ages rapidly—C. elegans, a nematode worm—to determine whether quinoa leachate could slow the metabolic signs of aging that most mammals exhibit. Nematode worms "have a short lifespan, which is critical for aging studies," Komarnytsky points out, they have metabolic genes that are similar to those in mammals, and "they age similar to humans." After administering the quinoa leachate to the nematode worms, he and his colleagues saw improvements in lifespan, locomotor performance, and mitochondrial bioenergetics and reductions in the presence of advanced glycation end products, reactive oxygen species, and body fat.

Such results firmly establish quinoa as a superfood, which Komarnytsky defines as a nutrient-dense food with a unique phytochemical profile. "Its complete protein profile and dietary ecdysteroids clearly differentiate it from other crops and are likely to support healthy metabolism, energy balance, and aging when consumed regularly," Komarnytsky says. Still, he cautions that further preclinical and clinical studies are necessary to confirm the study's findings. Another source of bioactive ecdysteroids is spinach.


Image © iStock.com/ bhofack2

Compounds in bananas mimic OTC pain reliever

IFT Next Jan 1, 2019

A team of scientists at the North Carolina Research Campus (a research partnership consisting of corporations, universities, and healthcare organizations working to transform human health through food and nutrition research) have determined that compounds in bananas are just as effective against pain and inflammation as an over-the-counter drug.

Researchers from Appalachian State University, Dole Nutrition Research Laboratory, University of North Carolina at Charlotte, North Carolina State University, and Metabolon conducted a study to determine whether ingesting bananas during exercise would have the same effect in athletes as drinking sports drinks. Sports drinks usually speed up recovery time in athletes and provide valuable electrolytes that are depleted during strenuous exercise. The results of the study indicate that not only do bananas work just as well as sports drinks for physical recovery during exercise, but the fruit also contains metabolites that mimic the function of ibuprofen, reducing inflammation and the pain and swelling that accompany it.

According to David Nieman, director of the Appalachian State University Human Performance Laboratory and lead author of the study, ibuprofen—a COX-2 inhibitor—is the number one drug that athletes take to fight inflammation. “The COX-2 enzyme is responsible for the formation of prostaglandins and thromboxane from arachidonic acid that initiate inflammation and pain in response to various activators, including exercise-induced muscle damage,” Nieman explains.

During the study, participating athletes consumed whole Cavendish and mini-yellow bananas, which contain a number of bioactive compounds that could be responsible for inhibiting the COX-2 enzyme. “Preliminary evidence supports that the primary active molecule from the flesh of the banana is dopamine, which becomes sulfated after absorption, and this is what we are using in the experiments. More work is needed to confirm this. There are other biochemicals from [bananas] that may contribute to the effect, including various phenolics,” Nieman says. “[N]early 20 biochemicals increase in the blood after acute banana ingestion, and these collectively may function more effectively in inhibiting COX-2 than any single biochemical alone.”

Neiman believes that the results of this study could lead to the development of food products made with banana peel, which is the part of bananas that contains the most dopamine. “If dopamine … is most responsible for COX-2 mRNA inhibition, the banana peel, [which] contains about 50 times more dopamine, can be considered for various products (after stability and taste issues are sorted out).”

Egg metabolites in blood related to lower risk of type 2 diabetes

Science Daily January 3, 2019

Consumption of one egg every day seems to associate with a blood metabolite profile that is related to a lower risk of type 2 diabetes, a new study conducted in the University of Eastern Finland shows. The findings were published in Molecular Nutrition and Food Research.

Eggs remain one of the most controversial food items. High intake of eggs has traditionally been discouraged, mainly due to their high cholesterol content. However, eggs are also a rich source of many bioactive compounds that can have beneficial effects on health. This means that the health effects of consuming eggs are difficult to determine based solely on their cholesterol content.

The investigators have previously shown that eating roughly one egg per day was associated with a lower risk of developing type 2 diabetes among middle-aged men participating in the Kuopio Ischaemic Heart Disease Risk Factor Study in eastern Finland. "The purpose of the current study was to explore potential compounds that could explain this association using non-targeted metabolomics, a technique that enables a broad profiling of chemicals in a sample," says Early Stage Researcher and lead author of the study Stefania Noerman from the University of Eastern Finland.

The study found that the blood samples of men who ate more eggs included certain lipid molecules that positively correlated with the blood profile of men who remained free of type 2 diabetes. In addition, the researchers identified several biochemical compounds in blood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that predicted a higher risk of developing type 2 diabetes, including the amino acid tyrosine.

The study suggests some plausible mechanisms which could at least partly explain the inverse association between egg intake and the previously observed lower risk of developing type 2 diabetes.
"Although it is too early to draw any causal conclusions, we now have some hints about certain egg-related compounds that may have a role in type 2 diabetes development. Further detailed investigations with both cell models and intervention studies in humans that use modern techniques, such as metabolomics, are needed to understand the mechanisms behind physiological effects of egg intake," Early Stage Researcher Noerman concludes.

Could this widely used food additive cause celiac disease?

Science Daily January 3, 2019

Myths about gluten are hard to bust. Intolerance, allergy, sensitivity, hypersensitivity. What is what?

Celiac disease is none of these things. It is an autoimmune disorder, where gluten triggers the immune system to attack the gut. It is common, lifelong, and can seriously harm health -- but nobody knows for sure what causes it. Now a review in Frontiers in Pediatrics says a common food additive could both cause and trigger these autoimmune attacks, and calls for warnings on food labels pending further tests.

Environment causes celiac disease -- but only in susceptible individuals Gluten-free diets have become popular despite little or no evidence of benefit for most people. But for the 1 in 100 with celiac disease, even a mouthful of bread can trigger an immune response that damages the small intestine, impairing nutrient absorption.

Exactly what causes this autoimmune reaction to gluten -- a protein found in wheat, rye and barley -- is uncertain. Specific mutations in an important immunity-related gene called HLA-DQ seem to be necessary for developing celiac disease, with one of two HLA-DQ variants present in virtually every sufferer -- but insufficient, as these variants are also present in about 30% of the general population.

As a result, myriad environmental factors have proposed to interact with genetic risk to cause celiac disease. These span infections, food and toxins; vaccination, drugs and surgery. Most recently, food additives have been suggested to contribute. Among these, microbial transglutaminase -- a bacterial enzyme heavily used in industrial processing of meat, dairy, baked and other food products -- has emerged as a likely culprit, according to the new review.

How a food binder could be our undoing

"Microbial transglutaminase can glue together proteins, so it's used to improve food texture, palatability and shelf-life," says co-author Aaron Lerner, visiting professor at the Aesku.Kipp Institute in Germany. "This enzyme functions like the transglutaminase produced by our body, which is known to be the target of autoimmunity in celiac disease." There is a direct positive correlation between rising use of industrial enzymes in bakery products and rising incidence of celiac disease in the last four decades, according to Lerner and co-author Dr Matthias Torsten of the Aesku.KIPP Institute, Germany. But if transglutaminase is produced normally in our tissues -- and by our own gut microbes -- what difference should a little more in our diet make?

"This is mostly a question of scale," argues Lerner. "Our own transglutaminase has a different structure to the microbial sort, which allows its activity to be tightly controlled.

And while the relatively indiscriminate microbial transglutaminase is produced by some of our normal gut fauna, the amount of the enzyme could be significantly increased when this microbial population is altered by factors like infection, antibiotics or stress -- or, indeed, through consumption of industrially processed foods."

What links gluten, transglutaminase, HLA-DQ genes and autoimmunity?

Gluten is tough to break down completely. This is useful for helping baked goods to rise and keep their shape, but in celiac sufferers presents a problem. "The gluten protein fragments or 'peptides' that remain after digestion are highly susceptible to transglutaminase, which modifies them to make a variety of new peptides" Lerner explains. "These unusual peptides are particularly likely to resist further breakdown, and to be recognized as 'foreign' by HLA-DQ immune receptors inside the gut wall -- but only in those carrying the HLA-DQ variants associated with celiac disease."

Compounding this, components of gluten also loosen the connections between cells lining the gut, allowing more gluten-derived proteins -- as well as microbial transglutaminase -- to breach this barrier and interact with immune cells.

"Microbial transglutaminase itself could also increase intestinal permeability by directly modifying proteins that hold together the intestinal barrier," adds Lerner.

Human studies implicate microbial transglutaminase

This all begs the question: if it is gluten-derived proteins that stimulate immune cells, why does the immune response target transglutaminase? And are microbial and human transglutaminase recognized interchangeably by the immune system?

"In one of our own studies, we tested antibodies from the blood of celiac patients. We found that more antibodies were active against complexes of transglutaminase bound to gluten fragments, than against either component alone.

The anti-complex antibody count was also the best predictor of intestinal damage in these patients. This was true of both microbial and human transglutaminase complexes, for which there were similar antibody counts."

In other words, microbial transglutaminase (bound to gluten fragments) could in fact be the target of the immune response in celiac disease -- and the attack on our own transglutaminase merely a case of mistaken identity. Microbial transglutaminase present in processed foods is therefore a potential environmental cause of celiac disease.


Image © iStock.com/MarsBars

Is microbial transglutaminase safe?

But according to Lerner, the jury is still out.

"Ultimately all we have so far are associations between microbial transglutaminase and celiac disease. To test whether this enzyme causes or triggers immune damage in celiac disease will require experimenting with exposure in animal models, intestinal cell lines or biopsies."

Nevertheless, with no known cure for celiac disease, treatment depends on preventive measures -- namely, adhering to a gluten-free diet.

"Until there is a clearer answer, we recommend transparency and vigilance with regards to labeling of foods processed using microbial transglutaminase." In Switzerland for example, such products must be labelled as unsuitable for persons with celiac disease.

How coffee might protect against Parkinson's

Medical News Today 29 December 2018 By Tim Newman

Coffee is thought to protect the brain against Parkinson's disease. A recent study investigates which compounds might give coffee its neuroprotective powers.


Image © iStock.com/Rawpixel

The findings may eventually lead to innovative new treatments. More than 60,000 people are diagnosed with Parkinson's disease in the United States each year. Symptoms include stiffness and difficulty with balance and coordination.

It is a progressive, neurodegenerative condition and, currently, there is no cure. Modern treatments can only help manage symptoms. Scientists do not understand why some people develop Parkinson's disease, but others do not. However, they have unpicked some of the neurological changes that take place.

One of the most critical changes appears to be a buildup of a specific type of misfolded protein in the brain. This is known to trigger cell death, which eventually leads to the symptoms of Parkinson's.

The protein in question is alpha-synuclein, which aggregates and joins up with other compounds to create so-called Lewy bodies. Alpha-synuclein can pass from neuron to neuron, spreading damage across different regions of the brain.

Parkinson's and coffee

Over the years, studies have suggested that coffee might help protect against Parkinson's disease.

Although caffeine appears to play a part in this, other molecules might be involved in the fight, too. In some studies, for instance, de-caffeinated coffee also offered protection against neurodegeneration in a model of Parkinson's disease.

Coffee contains hundreds of compounds that could potentially interact with the chemistry of the body. On the search for coffee components that might help slow

Parkinson's progression, researchers recently focused on a compound called eicosanoyl-5-hydroxytryptamide (EHT).

EHT is a fatty acid derivative of serotonin found in the waxy coating of coffee beans. It is not related to caffeine, and previous studies have shown it to have neuroprotective and anti-inflammatory properties.

The researchers, from the Rutgers Robert Wood Johnson Medical School Institute for Neurological Therapeutics in Piscataway, NJ, recently published their findings in the journal Proceedings of the National Academy of Sciences.

Joining molecular forces

In particular, the researchers wanted to understand whether caffeine and EHT could work together to fend off Parkinson's.
To investigate, they gave mice doses of caffeine or EHT; some received them separately, others were given them together. They then assessed each combination's ability to reduce the buildup of alpha-synuclein associated with Parkinson's disease.

They found that neither compound had a beneficial effect when given alone. However, when the mice consumed both EHT and caffeine, there was a significant reduction in protein buildup.

The researchers also demonstrated that mice treated with a combination of the two compounds performed better in behavioral tests. Because there are currently no treatments that slow the progression of Parkinson's, this finding offers fresh avenues for drug researchers to tread.

More work to be done

These are early days, but the researchers are keen to continue their work. Firstly, they plan to investigate the quantities of these chemicals necessary to impart benefits.
Lead author M. Maral Mouradian explains, "EHT is a compound found in various types of coffee, but the amount varies. It is important that the appropriate amount and ratio be determined so people don't over-caffeinate themselves, as that can have negative health consequences."

The authors also understand that the hunt for active compounds in coffee is likely to take some time. Because coffee is such a complex cocktail, the authors believe that "it is not unlikely that other components of coffee play a beneficial role as well." They also explain that the exact makeup of any cup of coffee can vary widely. This can depend on where the coffee bean grows, as well as the techniques used to harvest, roast, and brew it. There will need to be a great deal more research before researchers fully unravel the spectrum of coffee's benefits.

Not all saturated fats are equal when it comes to heart health

Cardiovascular risk of diets rich in saturated fats found in meats and the benefits of plant-based and dairy alternatives
Science Daily January 28, 2019

The type of saturated fats we eat can affect our risk of a heart attack, according to a study published in the International Journal of Cardiology.

People whose diets contain relatively little palmitic and stearic acid -- saturated fats composed of 16 or more carbon atoms (longer-chain saturated fats) that are typically found in meats -- and eat plant-based proteins instead have decreased chances of myocardial infarction.

Moreover, individuals who eat more saturated fats with 14 or fewer carbon atoms (shorter-chain saturated fats) that are typically found in dairy products have lower risk of myocardial infarction.

"Our analysis of the diets of large groups of individuals in two countries over time shows that the type of saturated fats we consume could affect our cardiovascular heath," explained lead investigator Ivonne Sluijs, PhD, Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht University, Utrecht, Netherlands.

The study investigated whether saturated fats with chains varying in length from 4 to 18 carbon atoms are associated with the risk of developing a myocardial infarction. Data from approximately 75,000 people in the UK and Denmark were analyzed. Of these two groups, nearly 3,500 people experienced myocardial infarction in the period between the study's initial outreach and follow-up 13 years later (in Denmark) and 18 years later (in the UK).

"We found that eating relatively little of the longer chained saturated fatty acids and consuming plant-based proteins instead was associated with a lowered risk. Substitution of those saturated fats with other energy sources such as carbohydrates did not affect the risk to develop myocardial infarction,"

said Dr. Sluijs. Although diets vary by nationality and other factors, the most frequently consumed saturated fat is palmitic acid, with 16 carbon atoms, followed by stearic acid, with 18 carbon atoms, both of which are found in meat products. Consumption of saturated fats that have shorter carbon atom chains and are present in dairy products is less prevalent.

Since the 1960s, when diets high in saturated fat were linked to elevated "bad" LDL cholesterol and coronary heart disease, dietary guidelines recommended restricting saturated fatty acids across the board. In recent years, research studies have raised some questions about what was considered established evidence. Inconsistent findings have pointed to the possibility that different types of saturated fats have different effects on cholesterol levels and the development of coronary heart disease.

Despite the fact that their study's findings support this hypothesis, Dr. Sluijs and her fellow investigators recommend proceeding with caution before changing dietary guidelines: "Our study only allowed us to draw conclusions on the level of associations between saturated fatty acids and the development of myocardial infarction. We do not know whether those fatty acids are actually the cause of differences between the occurrences of myocardial infarction we observed. To further explore this, we need experiments in which the consumption of saturated fatty acids is more controlled and, for instance, compared with consumption of unsaturated fatty acids," she noted.

"The study is applaudable for its large size, prospective cohort study design, and detailed assessment of diet and lifestyle factors. In addition, it is among the few studies that specifically examined individual saturated fatty acids in relation to coronary heart disease risk and compared with different macro-nutrients," commented Jun Li, MD, PhD, and Qi Sun, MD, ScD, both at the Harvard T.H. Chan School of Public Health, Boston, MA, USA, in an accompanying editorial. They also noted a few limitations of the study and thus called for cautious interpretation of the overall null results for the primary saturated fatty acids.

Dr. Li and Dr. Sun advise that shifts in fat intake should align with the recommended healthy dietary patterns, which emphasize limited intakes of red and processed meat and added sugars, lower salt intake, replacement of refined grains with whole grains, and higher consumption of fruits and vegetables.

'Small meets smaller': Dietary nanoparticulates impact gut microbiome New insights into the effects of food nanoparticles on the intestinal flora

Science Daily January 29, 2019

The intestinal microbiome is not only key for food processing but an accepted codeterminant for various diseases.

Researchers led by the University Medical Center of Johannes Gutenberg University Mainz (JGU) identified effects of nanoparticles on intestinal microorganisms. The ultra-small particles adhere to intestinal microorganisms, thereby affecting their life cycle as well as cross talk with the host. One of the researchers' observations was that nanoparticles' binding inhibits the infection with Helicobacter pylori, a pathogen implicated in gastric cancer. The findings will stimulate further epidemiological studies and pave the way for the development of potential 'probiotic' nanoparticles for food. The discoveries were published in Science of Food.

Due to their minute size, nanoparticles have unique characteristics and capabilities, such as adhering to microstructures. Nanotechnology is as an important driver of innovation for both consumer industry and medicine. In medicine, the focus is on improving diagnostics and therapeutics, while industry addresses mainly product optimization. Hence, synthetic nanoparticles are already used as additives to improve the characteristics of food. But how can we use nanotechnology more efficiently and safely in food? And are there unknown effects of nanoparticles, which need to be further exploited?

Nutrition strongly influences the diversity and composition of our microbiome. 'Microbiome' describes all colonizing microorganisms present in a human being, in particular, all the bacteria in the gut. In other words, your microbiome includes your intestinal flora as well as the microorganisms that colonize your skin, mouth, and nasal cavity.

Scientists and clinicians are interested in microbiomes because of their positive or negative effects on the host. These include modulation of our immune system, metabolism, vascular aging, cerebral functioning, and our hormonal system. The composition of the microbiome seems to play an important role for the development of various disorders, such as cardiovascular diseases, cancer, allergies, obesity, and even mental disorders. "Hence, nutrition and its containing nanoparticulates may affect the microbiome-host balance, finally influencing human health. In order to reduce potential risks and, ideally, promote health, the impact of dietary nanoparticles needs to be understood," emphasized Professor David J. McClements from the Department of Food Science at the University of Massachusetts in Amherst, USA.

"Prior to our studies, nobody really looked whether and how nano-additives directly influence the gastrointestinal flora," commented Professor Roland Stauber of the Department of Otolaryngology, Head, and Neck Surgery at the Mainz University Medical Center. "Hence, we studied at a wide range of technical nanoparticles with clearly defined properties in order to mimic what happens to currently used or potential future nanosized food additives. By simulating the journey of particles through the different environments of the digestive tract in the laboratory, we found that the all tested nanomaterials were indeed able to bind to bacteria." explained Stauber.

The scientists discovered that these binding processes can have different outcomes. On the one hand, nanoparticle-bound microorganisms were less efficiently recognized by the immune system, which may lead to increased inflammatory responses. On the other hand, 'nano-food' showed beneficial effects. In cell culture models, silica nanoparticles inhibited the infectivity of Helicobacter pylori, which is considered to be one of the main agents involved in gastric cancer.

'It was puzzling that we were able to also isolate naturally occurring nanoparticles from food, like beer, which showed similar effects. Nanoparticles in our daily food are not just those added deliberately but can also be generated naturally during preparation. Nanoparticulates are already omnipresent," concluded Stauber.

The insights of the study will allow to derive strategies for developing and utilizing synthetic or natural nanoparticles to modulate the microbiome as beneficial ingredients in functional foods. "The challenge is to identify nanoparticles that fit the desired purpose, perhaps even as probiotic food supplements in the future. Challenge accepted," emphasized Stauber and his team.

Looking to choose a healthy post-workout snack? Decide early, study says

Science Daily January 31, 2019

You've just exercised for an hour, tracking the burned calories with a sense of satisfaction. Then comes a choice: munch on an apple or indulge in the chocolatey goodness of a brownie?

A post-exercise snack can threaten to undo the gains (or losses) of a workout. But the decision itself may depend on when you make it, according to a new study from the University of Nebraska-Lincoln.
The takeaway? Avoiding delay can keep temptation at bay.
Nebraska's Karsten Koehler, Christopher Gustafson and their colleagues conducted an experiment that asked two groups of participants to go about their normal workout routines while wearing motion-tracking accelerometers, supposedly to calibrate them.

Before exercising, members of one group decided whether they wanted an apple, brownie or no snack following the exercise session -- an offer framed as a reward for calibrating the accelerometers. Members of the other group were presented with the same choice after they had already exercised.

Roughly 74 percent of participants who were asked prior to the workout session chose an apple, compared with 55 percent of those asked afterward -- making the latter about one-third less likely to favor the fruit. And whereas just 14 percent of the pre-exercise group selected the brownie, about 20 percent of the post-workout group decided to indulge.
The findings suggest that simply committing in advance to a post-exercise snack may increase the odds of eating more nutritiously, the researchers said.

"We found that there was very little research on this very tangible thing that I think everyone can relate to," said Koehler, assistant professor in the Department of Nutrition and Health Sciences.

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"If your goal is to lose weight, then I would say our findings support that you're better off making the choice ... not when you're hungry after your workout, but instead before you go to the gym."

That recommendation, and the data undergirding it, echoes broader research on the dynamics between timing and food choice. Prior studies have consistently shown that people are more willing to indulge when making immediate dietary decisions than when thinking ahead, said Gustafson, assistant professor in the Department of Agricultural Economics.

"Our study conformed very closely to the ideas in behavioral economics about this present-biased preference (for unhealthier options)," Gustafson said. "Using solely that model, I would've predicted that people would be more likely to choose the healthy snack when choosing before they exercise."

The study's design also put two other theoretical models to the test. One, known as compensatory eating, suggests that people consume more calorie-dense food in the aftermath of exercise to make up for calories expended during a workout. Yet the other model, exercise-induced anorexia, proposes that exercise can suppress appetite-related hormones and consequently lead people to eat less.

"There have been a lot of lab studies that have looked at appetite and hunger," Koehler said. "Most of these studies have found that right after exercise, you seem to be less hungry. I've always looked at these studies and wondered: Does it have such a strong impact that you can use this window after you exercise to say, 'Because I'm not hungry, I'm going to make a really good choice about what I eat'? But knowing myself and many other exercisers, there's also the notion that after you exercise, you want to reward yourself."

Despite the seeming contradiction, the team found indications of both. Though modest, the 6-percent increase in brownie choice between the pre- and post-exercise groups supported the notion of compensatory eating. And the evidence for exercise-induced anorexia was clear: The 12-percent fraction that declined a snack in the pre-exercise condition rose to 25 percent in the post-exercise group.

Plenty of questions remain, the researchers said. Did the rise in brownie choice stem more from the immediacy of the decision-making or the sway of compensatory eating? What differentiates those who exhibit compensatory eating vs. exercise-induced anorexia? Would a larger menu of options -- one that better approximates a real scenario -- alter the outcomes?

The answers may lie in more detailed experiments that Koehler, Gustafson and their colleagues are already busy conducting. "We're from two different academic backgrounds," Gustafson said, "and I think both of our fields have a perspective on the questions that we're looking at."

The team reported its findings in the journal Nutrients. Koehler and Gustafson authored the study with Nebraska's Ajai Ammachathram, assistant professor in the Department of Nutrition and Health Sciences; Nigina Rakhmatullaeva, graduate student in agricultural economics; Safiya Beckford, graduate student in nutrition and exercise physiology; and Alexander Cristobal, senior in nutritional science and dietetics.

Adherence to the Dietary Guidelines may save billions in health-related costs

IFT Weekly Jan 9, 2019

A study published in the Journal of the Academy of Nutrition and Dietetics suggests that improving the quality of the average American's diet could substantially reduce costs associated with heart disease, diabetes, cancer, and other major health problems.

The study is the first to comprehensively analyze the potential cost implications of improved adherence to healthy dietary patterns among U.S. adults across major chronic disease types. The researchers estimated the cost savings under two scenarios. The more conservative scenario looks at the savings that could be realized if


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U.S. adults increased their adherence to a healthy dietary pattern by 20%, as measured by two metrics of diet quality: the Healthy Eating Index (HEI) and the Mediterranean-style diet (MED) score. The more ambitious scenario projects savings that could result if U.S. adults achieved an 80% score on those same metrics.

Both the HEI and the MED are markers of what are considered healthy dietary patterns. The HEI is used frequently in the United States to evaluate a U.S.-style diet and reflects adherence with the 2015–2020 Dietary Guidelines for Americans while the MED was first used to describe the diet of countries in the Mediterranean region and emphasizes components such as fish, nuts, and fruits, along with olive oil as a healthy fat source.

The average U.S. adult currently shows about 60% adherence to the HEI. If this were increased to 72% adherence (a relative increase of 20%), the analysis shows the United States could save $30–$47 billion in health-related costs annually. Under the more ambitious scenario, if the average U.S. adult increased their adherence to 80% of the HEI, the researchers project an annual savings of $52–$82 billion. Close to half of these savings result from a reduction in costs associated with heart disease alone, with additional savings from reductions in costs associated with cancer and type 2 diabetes.

The average U.S. adult currently scores a 3.5 out of 9 possible points on the MED score used to assess adherence to the Mediterranean-style diet. If this adherence were raised by 20%, the researchers project an annual savings of about $21–$26 billion. The lower estimate includes only breast, colorectal, and prostate cancer along with five other health outcomes (coronary heart disease, stroke, type 2 diabetes, hip fractures, and Alzheimer's disease), while the higher estimate includes savings related to all cancer types along with the same five other health outcomes. Annual savings could reach $112–$135 billion if Americans increased their MED adherence to 80% by incorporating more components of the Mediterranean-style diet.

High Vitamin D Level Associated with Lower Diabetes Risk

Brazil study indicated supplementation was negatively associated with high glucose levels.

Nutraceuticals World 01.31.19

Image © iStock.com/designer491

The benefits of vitamin D in promoting bone health are already well known. A new study from Brazil suggested that vitamin D may also promote greater insulin sensitivity, thus lowering glucose levels and the risk of developing type 2 diabetes. Results were published online in Menopause, the journal of the North American Menopause Society (NAMS).

Other recent studies have shown a clear relationship between vitamin D and glycemic control, suggesting that vitamin D increases insulin sensitivity and improves pancreatic beta-cell function. In this cross-sectional study involving 680 Brazilian women aged 35 to 74 years, the goal was to evaluate the possible association between vitamin D deficiency and increased glycemia.

Of the women interviewed, 24 (3.5%) reported using vitamin D supplements. Vitamin D supplementation was found to be negatively associated with high glucose levels. Habitual exposure to the sun also provided the same association, demonstrating that vitamin D deficiencies are associated with high blood glucose levels. A serum 25-hydroxyvitamin D level <30 ng/mL was positively associated with a blood glucose level =100 mg/dL, as was a serum 25(OH)D level <20 ng/mL.

Study results appeared in the article "Higher serum levels of vitamin D are associated with lower blood glucose levels."

"Although a causal relationship has not been proven, low levels of vitamin D may play a significant role in type 2 diabetes mellitus," said JoAnn Pinkerton, NAMS executive director. "Vitamin D supplementation may help improve blood sugar control, but intervention studies are still needed."

FOOD SCIENCE & INDUSTRY news

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High-protein rice brings value, nutrition

Crop breeders build yield, market for high-protein rice

Science Daily January 23, 2019

More than 750 million people don't get enough nutrients from their food. More than two-thirds of those people live in places that consume a lot of rice. Can rice bred for extra protein be the answer?

"There are hundreds of millions of people around the world who depend on rice and eat it three times a day, but their access to protein is very limited by availability and cost," explains Herry Utomo, a professor at Louisiana State University.
"High-protein rice can be used to help solve the worldwide problem across social, cultural, and economic issues."

Utomo and his team developed a high-protein line of rice cultivar, 'Frontière,' which was released in 2017. The rice was developed through a traditional breeding process. It's the first long grain high-protein rice developed for use anywhere in the world, he says.

On average, it has a protein content of 10.6%, a 53% increase from its original protein content. It also needs less heat, time, and usually less water to cook. This high-protein cultivar is currently marketed as "Cahokia" rice. It is grown commercially in Illinois.

However, breeding a crop for more nutrients like protein can cause yield to go down. The researchers are trying to combat this. They tested a total of 20 new lines of high-protein rice to see if any would have a higher yield.

Their data showed the new high-protein lines improved yield by 11-17% compared to the yield of the first high-protein line. Grain quality characteristics differed.
Utomo says this new advanced line, with higher yield, is ready for final field testing prior to release.

Utomo adds researchers developed high-protein rice because of the growing market for new products that can offer more nutritional value from major food crops, including rice. In addition to being eaten plain, the high-protein rice can be processed into specialty food for higher nutrition.

Many products -- from rice flour used in baked goods to rice milk, baby foods, cereals, and crackers -- contain rice, and could benefit from more protein.

"We are now studying exactly how flours from this rice bakes differently than other rice flour," Utomo says. "The interest in gluten-free baked products continues to grow. This will present another opportunity for rice growers to give people what they are looking for."

The next steps go in two directions, Utomo says. "Because the original line is new to the market, marketing channels have to be put in place. In parallel, research for the next generation of high-protein rice lines is being carried out." Researchers hope these newer lines can ultimately be bought and grown by more farmers.

"Farmers don't have to change much to grow the high-protein line now on the market," Utomo says. "The higher protein is an incredible added value they can get without any additional cost or changed practices."

Snacks travel well with fast-paced consumers

IFT Weekly Jan 23, 2019

Once seen as guilty pleasures, snack foods have and will continue to evolve to be eating occasion solutions for American consumers constantly on-the-go, according to the NPD Group in its recently published Future of Snacking report.

Americans consumed nearly 386 billion of ready-to-eat snack foods last year, with the vast majority of those eaten between main meals. Snack food growth is happening at most dayparts with more use at meals and as meal replacements.

"Snack foods continue to evolve both as between-meal snacks and as part of main meals," noted David Portalatin, NPD food industry advisor. "Each of these snack food roles is changing in different ways in reaction to Americans' desire for balance, portable snack foods, and holistic wellness."

Snack food needs forecast to grow in the near term embody wellness benefits, like snacks with more protein, portability, like single-serve snack foods that fit into busy lives, unique and enjoyment, like unique flavor mash-ups, according to the report, which shows what snack food consumption will look like in the future and the opportunities for growth over the next five years. Even indulgent snack foods are staging a comeback by walking a line between health and enjoyment. Low-calorie, high-protein ice cream is an example of a beneficial snack food. Brands that support moderation as a rationale to indulge are also benefiting, like thinner versions of cookies.

The report also found that consumers' snack food choices aren't limited strictly to flavor. Emerging attributes for snack food consumers are snacks that encompass uniqueness and sensory elements such as texture, heat, and aromatics.

"Snacking is no longer just about eating when you're bored or eating for additional sustenance," said Portalatin. "Today and in the future, snacking is about solving small problems for consumers, and those problems present opportunities for food marketers across a variety of dayparts and needs."

A 'bran' new natural preservative? Researchers see potential in grain antioxidant

By Katy Askew 11-Jan-2019 – Food Navigator

A natural antioxidant found in grain bran could act as a food preservative that also helps to reduce food waste by utilising what is currently a production side stream, researchers suggest.

The study, from Penn State University, looked at a class of compounds called alkylresorcinils (AR). These are produced by grain plants such as wheat, rye and barley naturally to prevent mold and bacteria developing in the grain kernels.


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The search for clean label antioxidants

Andrew Elder, a doctoral candidate in food science who worked on the study, said that the discovery of a new source of natural antioxidant could be significant for the food industry, which has witnessed a jump in demand for clean label ingredients.

"Currently, there's a big push within the food industry to replace synthetic ingredients with natural alternatives, and this is being driven by consumers," he said. "Consumers want clean labels. They want synthetic chemical-sounding ingredients removed because of the fact that they don't recognise them and that some of them have purported toxicity."

While consumers demand more natural ingredients, Elder said the food industry has struggled to find natural antioxidants that are as effective as synthetic ones. "There are not many natural alternatives for synthetic antioxidants," said Elder. "Our work is focused on identifying new natural antioxidants to extend the shelf life of food and meet consumer demands."

Fighting food waste

Looking at the possible environmental benefits of ARs, the study flagged the potential to cut food waste in the supply chain. ARs come from the bran layer of cereal plants, which the food industry usually discards or uses for animal feed. "Bran is often a waste stream," said Elder. "We're taking something that's usually discarded in a waste stream and turning it into something useful."

ARs for preserving omega-3 oils

The researchers developed a technique to extract and purify ARs from rye bran and then tested their effectiveness on preserving emulsions containing omega-3-rich oil emulsions. The study focused on omega-3 oils because of a growing desire to add healthy oils to foods that would not normally contain them, the authors suggested.

However, doing so presents something of a challenge because omega-3 rich oils often have a shorter shelf life, causing foods to spoil more quickly. "Most people consume omega-3s from marine sources," said Elder. "As they break down, they can make the product smell and taste fishy. Consumers then throw these products out and don't buy them again, and this results in an economic loss."

Antioxidants are compounds that slow the rate at which omega-3 fatty acids degrade, preserving their health benefits and preventing food from spoiling as quickly.

Image © iStock.com/matteodestefano

Not as effective as other antioxidants

The researchers found that ARs did act as antioxidants in oil emulsions, preventing omega-3 oils from spoiling as rapidly as they did in emulsions with no antioxidants added.

However, when the team compared ARs to two other antioxidants widely used in the food industry - alphatocopherol or Vitamin E, a natural antioxidant; and butylated hydroxytoluene, a synthetic antioxidant – they found ARs were not as effective as either the natural or the synthetic antioxidant.

Nevertheless, the authors suggested that further research is required to determine the full potential of ARs as preservatives. For instance, the researchers noted that their AR extracts were not completely pure, which could have reduced the effectiveness of the ARs. Also, the researchers used a blend of different ARs that had different molecular structures.

Future work looking at different types of ARs will reveal whether an individual AR type is more or less effective than conventionally-used antioxidants, they concluded. "We're trying to identify natural antioxidants that are consumer-friendly, safe and effective," said Elder. "We hope that one day this work will lead to ARs being available on the market and provide more options for the food industry to use."

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British Nutrition Foundation launches portion size guide: 'It's not just about eating less but eating differently'

By Katy Askew 14-Jan-2019 Food Navigator

In a bid to raise awareness around portion sizes and encourage people to eat more balanced diets, the British Nutrition Foundation (BNF) today (14 January) launched a portion size guide, Find Your Balance.

The guide, which uses simple hand and spoon measurements to estimate portions, is designed to complement the UK government's Eatwell Guide. Bridget Benelam, a nutrition scientist at the BNF, explained that excessive portion sizes are thought to be a factor contributing to the country's obesity epidemic.

According to UK government data, 57% of UK women and 66% of men are classified as either overweight or obese. "There are many factors behind current levels of obesity but portion size is likely to be one of them.

Data suggest that adults are consuming 2-300kcal more then we need and so controlling portion size is an important way to get back to a healthier level of intake," Benelam told FoodNavigator.

Lack of awareness

The BNF found that people aren't really aware of the portion sizes they consume. "When we tested the resources we found that people didn't seem to consider portion size when eating and this was much more influenced by their habits, how they felt or how much they were served."

Within its portion size guide, the BNF has advised how often the suggested portions of foods from different food groups should be eaten during the day, and demonstrates how to put this into practice
with an example meal plan.

The food groups include:
- Fruit and vegetables – 5+ portions per day
- Starchy carbohydrates – 3-4 portions per day
- Protein foods – 2-3 portions per day
- Dairy and alternatives – 2-3 portions per day
- Unsaturated oils and spreads – small amounts

The BNF's suggested serving for cooked pasta is 180 grams, or 254kcal. But when the researchers looked at real-life portion sizes for spaghetti it transpired people are actually eating much more than this.

"The most commonly consumed size was 230 grams (324kcal) and about 10% of the sample we looked at were consuming 350 grams as a portion, which would provide nearly 500 calories from the pasta alone, before sauces and sides were added to the meal," Benelam stressed.
"We do hope to raise awareness in this guidance as having a quick check of portion sizes using the practical measures we've provided may really help people have a more appropriate calorie intake."

Find Your Balance

To develop the portion size guidelines, the BNF's nutrition scientists reviewed portion size guidelines in other countries, analysed portion sizes currently consumed in the UK and looked at what is available for consumers on supermarket shelves.

Based on this, they developed guidelines for eating 'sensible portion sizes' based on an average daily calorie allowance of 2000Kcal.

The BNF has developed three free resources: a fridge poster which provides an overview of the advice; a booklet which expands on how to put the portion guidelines into practice; and a longer digital resource, which is downloadable.

'It's not just about eating less' Benelam said this work comes in support to efforts from Public Health England to cut calorie and sugar consumption, which includes work on portions.

"Anything else that those in industry can do to encourage sensible portion sizes is welcome," Benelam said.

Image © iStock.com/alvarez

However, the nutritionist stressed, BNF isn't just concentrating on people to eat less. The Foundation also advises that people should adjust their diets to increase consumption of healthier foods.

"It's not just about eating less. For fruit and vegetables, provided that fats, oils or sugars aren't added, then you can eat big portions of these for relatively few calories and so there's now need to hold back on portion size. We're also not eating enough of foods like wholegrains, pulses and fish and so we should actually be eating more of these."

Five trends that will shape APAC's nutraceutical and supplements industry in 2019

By Cheryl Tay, Tingmin Koe 07-Jan-2019 – NutraIngredients Asia

As we enter 2019, we spoke to brands and industry experts, who revealed five key trends expected to shape APAC's supplement and nutraceutical sector in the coming year.

1. Probiotics in Japan: Gut health, affordability and convenience driving demands

Consumer demand for probiotics will continue, thanks to its benefits for gut health. As such, intestinal flora and gut health will be the focus of innovation, Japanese probiotics specialist Morinaga told us.

The Bidofibacteria longum BB536 strain, which promotes gut and skin health, along with weight management and colon cancer prevention, will be the focus of the firm's product innovation strategy next year. " We will continue to develop products using the Bifidobacteria longum BB536 strain. Also, we will stress the health functionality of our BB536 strain and respond to consumers' health concerns," a spokesman at the firm said.

Image © iStock.com/metamorworks

Isolated from healthy infants almost 50 years ago, the BB536 strain also won the Most Innovative Health Ingredient prize at the Gulfood Manufacturing Industry Excellence Awards last month.

Cost-savings and convenience factors such as "drinking in the house and relaxing" were other selling points consumers would consider when buying a supplement, the spokesman added. As such, the firm will focus on developing its top-selling convenient food products, including cheese, ice-cream and infant food in the next year.

2. Millennials and education to drive India's nutraceutical market

Growing affluence and higher levels of education in India have increased consumer knowledge of the health benefits of supplements and health foods, with millennials driving a large portion of the market.

Tech savviness among millennials also affords this particular set of consumers easy access to information surrounding health and nutrition, and a desire to avoid diseases like diabetes and heart disease (both highly prevalent in India) motivates them to seek healthy alternatives to their usual diets.

CEO of Indian nutraceutical brand OneLife, Gaurav Aggarwal, told NutraIngredients-Asia : "The nutraceutical industry as a whole is growing rapidly, as demand is increasing on account of consumer awareness of preventive healthcare. Exposure to global trends and wellness products among millennials is driving them to seek out supplements and health foods."

However, he added that such awareness was concentrated in urban India. Consumers in Tier 2 and Tier 3 cities are still largely unaware of such products, and require plenty of education on their own nutritional needs. Urban millennials "understand their nutrient deficiencies and want to use nutritional supplements to solve that". Aggarwal said, "As marketers educate consumers about the benefits of these nutraceutical products, acceptance will increase even faster."

Emboldened by this trend, nutraceutical companies in the country have begun to innovate more extensively. “Nutraceutical firms in India are integrating all the aspects of the health and wellness sector to place greater emphasis on the nutraceutical space," said Aggarwal, "The category is still nascent and nutraceutical firms are developing products based on ever-evolving consumer needs.”

3. Australian supplements to continue to take centre-stage in China

Australian supplements are well-loved by Chinese consumers for their quality and high production standards, and will continue to take centre-stage in China. This is according to H&H, a Chinese health supplement company that bought over Australian supplement firm Swisse Wellness last year. During the recent Double 11 annual sales event in China, its newly acquired flagship brand Swisse topped the charts , putting up a close fight against leading Japanese brands Kao and Moony.

Australian brands like Bio Island and Blackmores raked in a total of USD$30.7bn (RMB$213.5bn) at this year's Double 11 event, a 27% increase from last year. H&H, the Chinese owner of Swisse, told us that the firm's recent sales performance was a testimony to the popularity of Australian products in China.

"As we saw on 11-11, with Swisse being the number one imported brand overall and number one supplement brand, our brand and products are seen as 'best in class', reflecting the premium, proven and aspirational aspects of our consumer offerings, and leveraging the clean, green, safe and secure reputation of Australian-made products," said Severine Brichard, H&H Group Director (Marketing).

Moving into 2019, Swisse will focus on product development around gut health, beauty-from-within, cognitive function and stress support. Brichard noted that the Chinese market was especially quick to pick up new trends, since its customer base was younger and more digitally savvy. Witnessing the attractiveness of Australian supplements, Chinese e-commerce giant JD has also signed an exclusive strategic agreement with Australian brand AuMake early last month. Through the deal, JD.com will channel customer inquiries for Australian and New Zealand products. In addition, the two will develop a co-owned brand manufactured in Australia and New Zealand for Chinese consumers.

4. The constant evolution of innovations for seniors in Japan

Industry experts have pointed to Japan as the leader in health and nutrition innovations for older consumers, with other countries falling far behind. At the recent DSM Health Academy in Tokyo, Gita de Beer, DSM Nutritional Products' Global VP of Marketing (Food & Beverage), said only 1% of such innovations globally was meant for seniors. In contrast, 41% of Japan’s health and nutrition innovations are targeted at seniors , which she said presented a "huge opportunity to export that knowledge to the West" .

The Japanese are also "celebrating ageing" and as such, want to be healthier for longer. Based on this, industry is looking at not just age group, but mindset and lifestyle to inform its product development. This approach will allow brands to better cater to specific groups of older consumers. In addition, companies are also focusing on developing traditional foods with a nutritional twist, so seniors can maintain a healthy diet without drastically changing their eating habits.

Convenience is another factor manufacturers are taking into account, and innovations for seniors will feature easily accessible packaging, as well was easy-to-consume formats.

5. Weeding out the benefits:

CBD's rising popularity in Asia Hemp and cannabinoids (commonly known as CBD, in reference to the phytocannabinoid cannnabidiol) are being used in an increasing number of supplements and functional foods and beverages in the APAC region.

Swiss firm Creso Pharma has been one of the more prominent market players in APAC, most recently signing a commercial agreement to bring its CBD hemp-based nutraceutical cannaQIX50 to New Zealand. CEO and co-founder Dr Miri Halperin Wernli said APAC was "a region where projections suggest 23% of the worldwide spend on CBD products will take place by 2022".

New Zealand's Ministry of Health revealed that there were as many as 235,000 medical cannabis users in the country, where CBD is a class B1 controlled drug. Since 2017, medical practitioners have been permitted to prescribe CBD products to patients. Regulators are also in talks to remove CBD’s controlled drug status, a change likely to result in more prescriptions and a surge in sales.

In neighbouring Australia, medical marijuana has been thoroughly researched for use in supplements and pharmaceuticals. BioCeuticals recently invested $500,000 in a medical cannabis trial to investigate its effects on brain tumours and symptoms common in patients.

Earlier this year, former Swisse executive George Livery joined supplement firm Bod Australia to oversee the development of its 'sustainable cannabis business'. Elsewhere in APAC, Japanese consumers have taken a liking to imported CBD products: in February, Canadian CBD firm Phivida received approval from Japanese authorities to sell its products in the country. This included its Nano-CBD Iced Tea, a beverage formulated to treat the gastrointestinal tract, and maximise the body's absorption of orally ingested cannabinoids.


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Earlier this month, Aussie manufacturer Elixinol discussed the success of its hemp oil products in Japan with NutraIngredients-Asia. Founder and CEO Paul Benhaim called Japan "the leading country" in Asia with regards to hemp usage and added, "There is an increased acceptance this year, and that's why we are confident that 2019 is a year of success in Japan."

From flax and quinoa to beans and pulses: On trend ingredients driving fibre innovation in bakery

By Katy Askew 16-Jan-2019 – Food Navigator

High fibre claims are a natural fit for bakery manufacturers working to meet growing demand for products with positive nutritional associations. What grains and ingredients have most potential?

The health benefit of fibre consumption is well documented. Dietary fibre has a positive impact on gastrointestinal health and reduces the risk of non-communicable diseases such as cardiovascular diseases, type 2 diabetes, and colorectal cancer. It is also associated with reduced risk of weight gain. Across Europe, recommended fibre intake ranges from 25 to 38 grams per day. However, an EU survey of national dietary habits revealed that few of us are reaching these targets. "Many EU citizens do not meet recommended intakes of dietary fibre," the EU Science Hub concluded.

Propelling category growth

Consumers largely have positive associations around fibre – and they want to eat more of it. "The fibre message is an important one for consumers, who as a whole are eating way below the recommended amount," National Association of British and Irish Flour Millers (NABIM) director general Alex Waugh told FoodNavigator. Waugh believes that high fibre messaging plays well to this. He believes that the entire bakery category could benefit from the fibre health halo. "While high fibre products may provide a way to differentiate, bread in general is an important source of fibre," he suggested.

"As there is more positive comment about the benefits of fibre from health and wellbeing specialists… there is scope to draw greater attention to the existing fibre credentials of a range of popular breads, not just wholemeal. There are white loaves with a fibre content of around 5% and some seeded loaves are closer to 10% fibre. There's definitely potential for this to propel category growth."

Healthy appeal

While existing bread varieties may be able to grow sales by touting their fibre content, the bakery sector is also poised to capitalise through innovation to drive the market, Dr Janice Rueda, director of research and business development, edible bean specialties at ADM Nutrition, suggested. "For the past five years, high fibre breads have held steady at about 9-10% of all new bread products launched and show a 2% CAGR over that time period [according to internal ADM data]. There are definitely opportunities to grow this market, " she told FoodNavigator.

European bakery group Délifrance believes that the positive associations of fibre consumption can overcome some of the diet trends that have seen consumers put down their toast as they look to limit carb consumption. "Health is almost as big a driver for product choice as indulgence," Stephanie Brillouet, Délifrance marketing director observed. "Recent years have seen consumer interest in wellbeing in food transcend carb and calorie counting, to focus more on products with protein, fibre and guttural health claims.


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This growing interest, and knowledge, is fuelling our NPD at Délifrance, as demand grows for more fibrous alternative flours, grains, and inclusions such as a flax, quinoa and spelt," she told FoodNavigator.

This trend prompted Délifrance to develop a range of high-fibre breads, made with wheat bran and a blend of six seeds. And Délifrance does not plan to take its foot off the innovation pedal as its product developers work to stay ahead of consumer expectations. "While interest in more fibre diverse options seems to be on the rise, so is demand and expectation of different flavours and ethnic influences such as Mediterranean and Middle-Eastern. This is a trend which inadvertently lends itself to fibrous dishes and ingredients, like lentil and vegetable heavy soups, paired with a whole wheat sourdough, or our carrot, flax and pumpkin seed lozenge," Brillouet noted.

'Great opportunities for innovation'

Some bakers hope to leverage recipes that are high in fibre as a point of difference, giving a category that is largely commoditised access to higher margin premium sales. "The high fibre platform offers great opportunities for innovation with exciting ingredients that are just beginning to be used in bakery applications," Dr Rueda said. Pointing to ADM's VegeFull bean and pulse ingredients, she suggested that high fibre recipes "add new dimensions of taste and texture to breads and bakery products" while also enhancing nutritional quality. Dr Rueda noted that ingredient innovation has been vital to improving product quality and making products that are high in fibre more appealing to the mass market. "Historically, one of the biggest hurdles to mass appeal of high fibre breads has been taste and texture," she said, noting that new ingredients have been developed to tackle this issue.

Other strategies to broaden the appeal of high fibre baked goods and drive category growth include combining high-fibre and other messaging, Dr Rueda suggested. In particular, she said this could play into the trend to limit what are seen as high carb foods. This can be achieved by utilising alternative protein ingredients such as beans, nuts and seeds. "Combining the high fibre tag with a plant-based protein message could help to increase appeal of high fibre breads among consumers trying to adhere to specific eating patterns, especially those looking to increase consumption of plantbased protein."

Délifrance's Brillouet also expects the high fibre bakery market to benefit from the use of increasingly diverse ingredients that appeal to more adventurous consumers. "As awareness of the benefits of a fibrous diet continues to develop, alongside consumers' willingness to explore and experiment with ingredients, inclusions, and toppings, we're expecting the on-trend bread market to diversify, moving away from the current favourite sourdough, toward more complex, non-traditional loaves and ingredients. "If this trend continues, a fibre-heavy, rustic loaf, for example, would sit well as a premium offer, or upsell opportunity next to more traditional breads as carriers, or accompaniments."

Image © iStock.com/ SIphotography

Innovation in new categories can help lift fibre consumption

By Katy Askew 16-Jan-2019 – Food Navigator

The health benefits of fibre are becoming more widely discussed and consumers say that they want to eat more of it. But while foods like fruits, vegetables and grains are fibre rich, most of us are still struggling to eat as much as we should. Fibre enriched products can help.

Fibre is important for gut health. It enables the body to transport nondigested food through the gut. Consumption has also been linked to a host of other benefits, such as weight management and reduced risks of NCDs including various cancers, Type 2 Diabetes and cardio vascular disease.

Just can't get enough

Consumers are hearing the health message loud and clear. "Fibre is consistently ranked as one of the top five ingredients or benefits looked for by consumers and it is a recognisable and consumer-friendly term. Consumers are also aware of the health benefits that a diet rich in fibre can provide," Antonietta Wallace nutrition marketing manager at starch supplier Ingredion EMEA told FoodNavigator.

"We know that claims such as 'source of fibre' and 'high in fibre', have an impact on consumer choice. 28% of European consumers


Image © iStock.com/grafvision

But while consumers are clued into the high fibre message, most of us fail to eat as much as we should. In Europe, the recommendation for total fibre intake ranges between 25-32g per day for adult women and 30-35g per day for adult men. "Most people do not eat enough dietary fibre," according to the British Nutrition Foundation.

Citing data for 2012-14, the BNF said the average daily intake of fibre in the UK was 20.1g for men and 17.2g per day for women. This trend is corroborated by recent literature from the BENEO-Institute, which found consumers are eating "approximately half" the daily fibre intake recommendations. BENEO, which supplies ingredients including its chicory root fibres inulin and oligofructose, concluded that consumers understand the benefits of fibre – they just can't get enough.

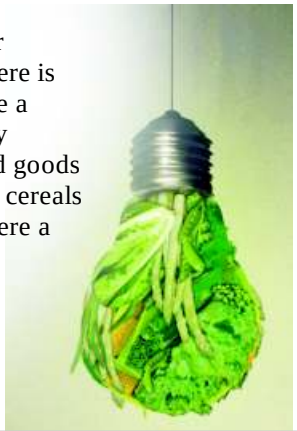
"Although fibre is key for a healthy digestive system and consumers are aware of it, they still struggle to reach their daily recommended intake of fibre," BENEO's VP of regulatory affairs and nutrition communication, Anke Sentko, told FoodNavigator. "The reasons for this are manifold: fibre-enriched products tend to have a grainy or bland taste. Also it is challenging to achieve the recommended intake of fibre by solely consuming food groups which are most fibre rich, such as vegetables, grains and some fruits. To combat this in the future and help bridge the gap, a healthy and balanced diet including fruits, vegetables, grains but also mix of various fibres including fibre-enriched products is needed. In order to successfully increase the fibre intake, fibre-enriched products must deliver in taste," Sentko suggested.

Beyond bakery: NPD can open new high fibre categories

For most of us, the main sources of dietary fibre are cereals and cereal products, such as bread, followed by vegetables and potatoes. Sentko suggested that by focusing its efforts on delivering high fibre products in both established and emerging product formats, food manufacturers can make it easier for consumers to eat more fibre. "Companies can encourage fibre intake in consumers by making food categories that are known for their fibre content more appealing," he said citing Kellogg's Happy Inside breakfast cereal innovation.

Further options can be made available "by enriching food groups that aren't known for being high in fibre ", such as ready-to-drink coffee or confectionery. Citing BENEO consumer research, Sentko continued: "More than two thirds of respondents in Europe see the benefit of fibre enrichment linked to breakfast cereals and bread, whilst 61% like the idea of fibre enrichment linked to cereal bars. In addition, more than half of those surveyed found the idea of fibre enrichment in both pasta and yoghurt products appealing, or very appealing."

Ingredion's Wallace also highlighted the potential of leveraging both established and emerging categories for high fibre products. "For consumers, there is perceived to be a natural affinity between baked goods such as bread, cereals and pasta, where a large proportion of the recipe might be flour, wheat, rye or oat-based, and a fibre claim…. To dramatically improve the fibre content of our diets we also need to look at how fibre can be used in applications beyond the traditional areas of bread and cakes," Wallace suggested.



Selecting the right fibre ingredient In order for innovators to expand high-fibre offerings into new categories, they need to select the right fibre ingredient for their application.

For instance, Wallace continued, various resistant starches can be used in both high- and low-moisture applications and – while some starches see reduced fibre content during cooking – retrograded starches remain stable despite exposure to high or low temperatures. This "opens up new opportunities to boost the fibre content in wider food categories including yoghurt, beverages or dairy desserts," she suggested.

Sourcing the best fibre for your application in terms of functionality isn't the only consideration R&D professionals need to consider. Different fibres also have different benefits on gut health, BENO's Sentko explained.

"There are different fibres that are all important and promote different properties related to digestive health. Some fibres pass through the intestine unchanged and provide bulk, others build viscous gels and may pack some nutrients inside that escape digestion, others are used by the microbiota in general and increase biomass, some particular fermentable fibres have the unique property to be prebiotic in addition to being a fibre. Individual fibre types need to demonstrate the individual physiological properties as generalisation is not justified."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Reaching 'full potential': World Bank specialist urges India to further develop food processing sector

By Pearly Neo 04-Jan-2019 – Food Navigator Asia

India's food processing sector is only at 10% of its full potential, according to an expert at the World Bank who claims it is lagging behind other emerging markets.

At a World Bank session at this year's Global Agriculture and Food Summit World Bank Lead Agribusiness Specialist Chakib Jenane told delegates that the milk processing industry in India was currently at 35% capacity of its full potential, but fruit and vegetable processing at a mere 2%. Overall, the Indian food processing industry is at 10% of its potential, which is far behind other developing nations like Morocco at 35%, not to mention developed countries like the United States at 60%. "India is lagging due to poor business environment, lack of appropriate linkages, lack of processable varieties and assured input supply, presence of many small players and MSMEs (Micro, Small and Mini Enterprises) which face huge capital start up issues," he said to United News of India.

Jenane added that US$450bn was needed to achieve food security in India, and that the private sector would need to help contribute some US$220bn of this. The Indian government appears to be on the case though, with Indian commerce minister Suresh Prabhu announcing funding by the Abu Dhabi Investment Authority into the food processing industry not long after Jenane's comments.

Speaking at an Assocham event on strengthening the MSME ecosystem in food processing, Prabhu added that with the new Agricultural Export Policy, restrictions on organic and processed food would be lifted. "[The] government will remove all restrictions on organic foods as well as processed foods," he said to KNN India. "As a part of entire policy, the creation of cold chain infrastructure would be aggressively worked on with the complete involvement of state governments. Each of the state governments has decided to appoint a nodal officer who will work to create the infrastructure. The idea is that we create clusters for different products for agriculture, horticulture, meat, dairy and others depending upon the natural products produced in each state."

More on the Indian food processing industry

According to data from the India Brand Equity Foundation (IBEF), the Indian food processing industry takes up some 32% of the country's food and grocery market, which is the sixth largest in the world. As the world's second largest producer of fruits and vegetables, the Indian government has taken steps to reduce post-harvest losses by planning to implement 500 cold-chain projects as well as 42 mega food parks in the country.

The main export destinations for India's processed foods are the Middle East and Southeast Asian markets. The sector is currently valued at INR31tn (US$434bn), and estimated to reach INR65tn (US$911bn) by 2020, according to Telangana Today . An Assocham-Grant Thornton study released in 2017 added that the sector has the potential to attract some US$ 33 billion (about INR2.4tn) in investments by 2024. "Given the trade in production of food commodities, the food processing industry in India is on an assured track of growth and profitability," said the study authors to Economic Times India.

The future is fibre: How to cash in on the trend

By Nikki Cutler 18-Dec-2018 – Food Navigator

2019 could be the year fibre becomes fashionable as consumers learn more about gut health and weight management, according to a leading ingredient supplier.

Dr Ieva Laurie, principle scientist EMEA at Tate & Lyle, has told NutraIngredients 'the future for fibre is bright' and brands must tap into the opportunity with product enrichment. "With the expanding science behind fibre and its influence on the microbiome, and new exciting benefits such as bone health, potential benefits related to immunity, and even a possible correlation between gut health and the brain, the future for fibre is bright," she said.


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She adds that Tate & Lyle research has found that consumers of all ages and from all regions want to increase their fibre intake but the motivation for this does differ dependent on the age of the consumer. "Younger consumers seek fibre for weight management benefits whereas older consumers tend to seek digestive health benefits. They also recognise the weight management benefits such as satiety and glycaemic response."

She says consumers are also slowly becoming more aware of their daily-recommended intakes and widespread deficiencies. “Fibre intakes in Europe are worryingly low which is a major own-goal for public health as experts agree that it is one of the most beneficial nutrients that people can add to their diet. Tate & Lyle research shows that a lmost half (44%) of consumers in Europe want to add more fibre to their diet.

"In the UK, the highest contributor to fibre intake across all ages is cereals and cereal products (contributing to around 40% daily fibre intake), followed by vegetables (30%) and fruit (10%). Increasing these foods as well as manufacturers enriching other food categories with fibres may be a way to increase dietary fibre in our diets. Importantly, a variety of fibres should be incorporated in the diet as different fibres provide different benefits."

Gut microbiome

Dr Laurie adds that fibre’s popularity has been boosted by the fact people are more aware of the importance of having a healthy gut. She says consumers don’t necessarily understand the difference between prebiotics and probiotics, but a growing percentage of them recognise that both are important for gut health, and have a generally positive association with them. “An exciting and emerging area of science around fibres is their potential to modulate gut microbiota and the gut microbiome. With technological advances, the role of gut microbiota for various health benefits such as gut-brainaxis, immunity, as well as metabolic function, are becoming clear.

"The gut is often termed ‘the second brain’ because the composition of a person’s gut microbiota, the community of micro-organisms residing in the body, can change the signals that are sent from the gut to the brain, which can activate processes in the immune system and nervous system, for instance."

Yoghurts

Kevin Armstrong, Health & Wellness Product Manager EMEA at Tate & Lyle, says that, in terms of enrichment, yoghurts with added fibre claims are becoming more prevalent. He explains: "This is a great fit for some of the other health benefits now associated with fibre consumption. For many consumers, the association between some yoghurt products and gut health is already well established and the addition of fibres should enhance this already positive link."

Health claims

Despite the growing interest, Dr Laurie says brands still must work to educate consumers further in order to best benefit from their fibre enriched products. Dr Laurie adds that Tate and Lyle does this through nutrition education seminars, its company websites and via on-pack information. Products that contain at least 3g of fibre per 100g or at least 1.5g of fibre per 100 kcal can include a ‘source of fibre’ claim on-pack, and those with a ‘high fibre’ claim must contain at least 6g of fibre per 100g or at least 3g of fibre per 100 kcal.

Promitor for fibre enrichment
Promitor Soluble Fibre is a corn based soluble fibre with over two times the digestive tolerance of inulin, reducing the possibility of digestive discomfort. “Human studies have shown that up to 65g of Promitor Soluble Fibre is well tolerated in a daily diet, which is more than twice the daily amount of recommended intake of fibre per day (Housez B et al., Evaluation of digestive tolerance of a soluble corn fibre. J Hum Nutr Diet 2012).

Biofortified Cassava High in Iron & Zinc Could Improve Nutrient Deficiency in West Africa

Process would maintain yield and other plant characteristics important to farmers and consumers.

Nutraceuticals World 01.29.19

The “hidden hunger” caused by micronutrient deficiency is a global threat to human health, with particularly severe impacts in Africa.


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In Nigeria, 75% of preschool children and 67% of pregnant women are anemic, and 20% of children below five years suffer from zinc deficiency. Iron deficiency anemia affects the immune system, stunts growth, and impairs cognitive development in children, while deficiency in zinc causes increased risk of death from diarrhea, stunting and reduced cognitive development. Developing new varieties of a staple food crop with elevated levels of these two minerals could significantly improve diets and health.

In a paper published in the journal Nature Biotechnology, "Biofortification of field-grown cassava by engineering expression of an iron transporter and ferritin," Donald Danforth Plant Science Center scientists, led by Narayanan Narayanan, PhD, research scientist, and Nigel Taylor, PhD, associate member and Dorothy J. King Distinguished Investigator, and an international team of researchers demonstrated that field-grown cassava plants overexpressing a combination of plant genes can accumulate significantly higher concentrations of both iron and zinc. The elevated mineral levels of the "biofortified" cassava storage roots are retained after processing into common foodstuffs and are nutritionally available at levels that could have a significant impact on the health of cassava-consuming populations in West Africa.

"This work showed us that it is possible to raise the iron and zinc content of cassava roots while maintaining yield and other plant characteristics that are important to farmers and consumers," Dr. Taylor said. "We also confirmed that the higher mineral levels don't disappear during cooking, which means that better nutrition can actually reach the dinner plate and the digestive tract."

The research took place over a 10-year period and involved more than a dozen scientists working in the laboratory, greenhouse and field locations. Cereal crops with higher mineral levels have been developed using the tools of genetic modification, but non-grass plants such as cassava take up minerals from the soil in a different way.

Ultimately it was a combination of two genes, IRT1 and FER1, from the model plant species Arabidopisis that led to cassava plants with iron concentration levels 6-12 times higher than conventional cassava and zinc concentrations that were 3-10 times higher. "It was a real challenge to find a combination of genes that would raise both iron and zinc levels and maintain them under field conditions without impacting yields," stated the paper's lead author, Dr. Narayanan.

To identify the impact of food processing on mineral levels in the biofortified cassava, researchers prepared gari and fufu, two common West African foods, by chopping, soaking, fermenting, pressing, and roasting cassava. They found that high levels of iron and zinc were retained through these cooking processes and remained available for absorption in the gut following digestion. Ultimately the biofortified cassava could provide 40-50% of Estimated Average Requirements (EAR) for iron and 60-70% of EAR for zinc for children and women in West Africa.

"Biofortified cassava has the potential to improve the nutrition and health of millions of people in West Africa," said Dr. Taylor. "The higher iron and zinc would be present in every root harvested from these special plants, and therefore in every bite of food prepared from them."

Researchers in the VIRCA Plus project (cassavaplus.org) are now integrating the high iron and zinc trait into cassava varieties that are popular in Nigeria, with more field evaluations and assessments planned for 2019. Further development, testing and regulatory review are needed before iron and zinc biofortified cassava could be made available to farmers and consumers in the coming years.

The research was funded by the Bill & Melinda Gates Foundation through the Global Challenges for Global Health Program, and U.S. Department of Agriculture, Agricultural Research Service.

Snack Foods Evolve to Meet Modern Consumer Needs

Demand grows for portable products that offer balance and holistic wellness.

Nutraceuticals World 01.24.19

Once seen as guilty pleasures, snack foods have and will continue to evolve to be eating occasion solutions for a nation of consumers constantly on-the-go, according to The NPD Group and its "Future of Snacking" report.

Image © iStock.com/andresr

Americans consumed nearly 386 billion ready-to-eat snack foods last year, with the vast majority of those eaten between main meals; and snack food growth is happening at most dayparts with more use at meals and as meal replacements.

"Snack foods continue to evolve both as between-meal snacks and as part of main meals," said David Portalatin, NPD food industry advisor. "Each of these snack food roles is changing in different ways in reaction to Americans' desire for balance, portable snack foods, and holistic wellness."

Snack food preferences expected to grow in the near term embody wellness benefits, like snacks with more protein, portability, single-serve snack foods that fit into busy lives, and unique flavor mash-ups, according to NPD. Even indulgent snack foods are staging a comeback by walking a line between health and enjoyment. Low calorie, high protein ice cream is an example of a beneficial snack food. Brands that support moderation as a rationale to indulge are also benefiting, like thinner versions of cookies.

The report also found that consumers snack food choices aren't limited strictly to flavor. Emerging attributes for consumers are snacks that encompass uniqueness and sensory elements such as texture, heat, and aromatics.

The report shows what snack food consumption will look like in the future and the opportunities for growth over the next five years.

"Snacking is no longer just about eating when you're bored or eating for additional sustenance," said Mr. Portalatin. "Today and in the future, snacking is about solving small problems for consumers, and those problems present opportunities for food marketers across a variety of dayparts and needs."

Mixing junk food with healthy food may increase healthy food consumption

IFT Weekly Jan 16, 2019

A study published in Psychological Science suggests that people are more likely to choose healthy food found intermingled with junk food, not set off in its own section—like in a grocery store.

Image © iStock.com/TerryJ

By analyzing choices and motivating factors, Duke University researchers found that the proximity of indulgent food can actually motivate people to choose healthier options. The researchers invited 79 individuals from the Durham-Chapel Hill area of North Carolina to fast for four hours beforehand, so they arrived hungry. Presented with a one-to-one choice of healthy to unhealthy food—such as salmon and Oreo Cookies—nearly all participants choose the tastier treat.

However, when presented with the same foods paired with other unhealthy foods, participants were twice as likely to choose the pair that contained a healthy option—even when told they had a 50% chance of receiving either item.

One possible explanation involves attention. The healthy item—salmon, say—was the different item among the choices, so it stood out visually. Researchers tracked subjects' eye movements and found that subjects spent more time looking at salmon and other healthy foods when they were surrounded by indulgent treats.

The new research suggests part of the problem in that approach may be how food is displayed. "When people see a wall of cabbage and broccoli, that may not encourage people to choose it," said study co-author Nicolette Sullivan, a postdoctoral associate in psychology at Duke. "Right now, food items are very segregated: here's the produce, here are the candy bars. Yet maybe if we put something healthy in the middle of the snack food section, perhaps that might encourage people to choose it."

The researchers hope the research can guide new approaches to encouraging healthier diets.

Regulatory news

Image © iStock.com/cyano66

Food labels have effects on consumption, product formulation

IFT Weekly Jan 23, 2019

Over the past two decades, labels such as the U.S. Nutrition Facts Panel on packaged foods, calorie counts on national restaurant menus, front-of-pack labels encouraging healthier eating, and "low-sodium" or "fat-free" identifiers have been developed in order to promote healthier choices. But do they work?

A new Food-PRICE systematic review and meta-analysis of interventional studies, led by researchers from the Friedman School of Nutrition Science and Policy at Tufts University and published in the American Journal of Preventive Medicine, assessed the effectiveness of multiple types of food labels. The researchers found that these approaches can impact some targets, but not others, for both consumer and industry behavior. The 60 interventional studies reviewed were comprised of two million unique observations, including consumer reported dietary intakes, purchases, and sales receipts, and were published between 1990 and 2014.

"Many old and new food policies focus on labeling, whether on food packages or restaurant menus. Remarkably, the effectiveness of these labels, whether for changing consumers' choices or industry product formulations, has not been clear," said senior and corresponding author Dariush Mozaffarian, dean of the Friedman School. "Our findings provide new evidence on what might work, and what might not, when implementing food labeling."

In a pooled analysis of studies that included food labeling on menus, product packaging, or other point-of-purchase materials such as placards on supermarket shelves, the researchers found that labeling reduced consumers' intake of calories by 6.6%, total fat by 10.6%, and other unhealthy food options by 13%. Labeling also increased consumers' vegetable consumption by 13.5%. In contrast, labeling did not significantly impact consumer intakes of other targets such as total carbohydrate, total protein, saturated fat, fruits, whole grains, or other healthy options.

When industry responses were evaluated, the researchers found that labeling led to reductions of both trans fat and sodium in packaged foods by 64.3% and 8.9%, respectively. However, no significant effects of labeling were identified for industry formulations of total calories, saturated fat, dietary fiber, other healthy components (e.g., protein and unsaturated fat), or other unhealthy components (e.g., total fat, sugar, and dietary cholesterol), although relatively few studies evaluated these endpoints. "For industry responses, it's interesting that the two altered components—trans fat and sodium—are additives," said Mozaffarian. "This suggests that industry may be more readily able to alter additives, as opposed to naturally occurring ingredients such as fat or calories, in response to labeling. It will be interesting to see whether this will translate to added sugar, newly added to the Nutrition Facts Panel on food labels in the United States."

'False propaganda' is 'bad for food businesses': India's FSSAI decries 'irresponsible reporting'

By Pearly Neo 12-Dec-2018 – Food Navigator Asia

The Food Safety and Standards Authority of India (FSSAI) has denounced what it claims to be 'irresponsible reporting' on the safety and quality of food in the country.

In an official press statement on the issue, FSSAI declared videos regarding the matter that have been widely circulated on social media to be 'false and malicious', and also mentioned print and electronic media as culpable parties.

FSSAI CEO Pawan Agarwal added that the situation was leading to ' fear amongst public at large and erodes confidence in the food control system in the country'. "Such false propaganda is neither good for citizens nor for food businesses. This also erodes global trust in our food system and food businesses, and potentially has far reaching public health, social and trade implications," he added.

FSSAI will be taking action in an attempt to curb the negative effects of the situation, including contacting the relevant media for 'internal checks' so as to ensure that 'reports on food safety are carefully verified'. Additionally, FSSAI added that the Indian Ministry of Electronics and IT has been contacted so as to establish a 'system for tracking of such messages' , such that 'perpetrators of such mischievous videos could be brought to book and penal action initiated against them (sic) '. The national food safety watchdog also intends to hold a workshop with the intention of educating local media on the 'technical aspects' of food safety reporting.

Milk, milk and more milk

Amongst the items Agarwal pointed out included a recent video relating to melamine in Indian dairy, where he said 'it was maliciously projected that FSSAI had given permission for use of melamine in milk' . "The use of melamine either as an ingredient or as an additive is not permitted in any food under the food safety regulations of the country," he stressed. "Maximum limits for the presence of melamine in food, including milk, have been established under the regulations to address the incidental presence of melamine as a contaminant."

In addition, an interim report on the recent National Milk Quality Survey 2018 which was recently released has also been claimed to be misinterpreted. FSSAI has previously said that this is the 'most comprehensive survey on safety and quality of milk in the country'. It claimed that the milk adulteration issue in the country was actually 'not serious at all' , and that the majority of contaminants came from the primary production process.

This was despite consumer findings revealing very different results from the above, saying that 78% of the milk in India does not meet quality standards. According to the consumer report, only 20.7% of branded and 22.5% of unbranded milk samples respectively were standards-compliant. The agency also claimed that local reports regarding a WHO advisory to the country saying that 'if adulteration of milk and milk products is not checked immediately, 87% of citizens would be suffering from serious diseases like cancer by the year 2025 (in India)' were false.

Via the press release, FSSAI asserted that no such advisory had been issued, and that neither FSSAI nor WHO had been approached on the matter. This was despite news reports published on the FSSAI website itself that mentioned the advisory.

As of November 2018, the advisory cannot be detected online. That said, no mention was made of an earlier report that surfaced in September, saying that roughly 68% of all milk and milk products in India were found to be in violation of FSSAI standards.

'Next level' of food safety in India: FSSAI announces new packaging regulations

By Pearly Neo 21-Jan-2019 – Food Navigator Asia

The Food Safety and Standard Authority of India (FSSAI) has announced new regulations prohibiting all food businesses in India from using 'unsafe' materials such as newspapers and recycled plastics to wrap food products.

"The food businesses shall have to comply with these regulations by July 1 2019," said FSSAI CEO Pawan Agarwal. According to the official FSSAI statement on the matter, the regulations will cover general and specific packaging material requirements as well as overall migration and specific migration limits of contaminants for plastic packaging materials "The packaging materials used for packing or storing the food products shall conform to the Indian Standards provided in the schedules," it added.

According to The National Law Review , compliance to these standards was only on a voluntary basis previously. "[These standards refer to] the Indian Standards (IS) listed in Schedules I, II, and III that apply for paper and paperboard materials, metal and metal alloys, and plastic materials, respectively," it added. These new regulations will replace the existing Food Safety and Standards (Packaging and Labelling) Regulations, 2011 once approved.

Safety first

The new regulations came to pass after FSSAI conducted two packaging studies that revealed a number of causes for safety concerns. The first study was on the migration of chemical contamination and heavy metals from packaging materials, conducted by the Indian Institute of Packaging (IIP), Mumbai. The second was on chemical contamination from loose packaging material, by the National Test House (NTH), Kolkata.

High levels (above 5%) of chemical contamination were found in samples of food packed in coloured carry bags (80%), black carry bags (59%), aluminium-coated disposable containers (24%) and sweet boxes (21%).

Major areas of concern were found in the country's informal/unorganised food sector (13.4% prone to contamination), as well as in loose packaging materials which include plastic carry bags. This led to the new regulations prohibiting 'packaging material made of recycled plastics including carry bags for packaging, storing, carrying or dispensing articles of food'.

Also specifically mentioned by FSSAI was the prohibition of newspapers and other similar materials for packing and wrapping, due to 'the carcinogenic effect of inks and dyes'. The 'respective Indian standard' must be adhered to for the usage of printing inks on food packages. Agarwal acknowledged that in view of this, the implementation of these new regulations is likely to face 'difficulties'. However, he remained certain that these were important, as they would 'raise the bar of food safety in India to the next level' .

Food standards enforced in 2019

In the meantime, FSSAI has also enforced four new food standards as of January 1 2019. The first covers standards for all pulses, whole and decorticated pearl millet grains, maize flour and grit, couscous, tempe, textured soy protein, sago flour, bee wax and royal jelly.

Also on the list are organic food regulations, standards for honey, and microbiological standards for fruits and vegetables and the relevant products. "Food businesses are usually provided a period of at least 6-months as transition period before new standards come into force," said FSSAI.

Also upcoming in 2019 are regulations surrounding the tolerance limit of antibiotics and pharmacological substances in food products, originally scheduled for January 1 but now delayed to April 1 due to technical issues. Alcoholic beverage standards will be implemented on April 1 as well.

July 1 will see regulations and standards surrounding food fortification, frozen dessert labelling, as well as vegetable oil advertising, claims, packaging and labelling come into effect.

FSSAI issues guidelines for fortification ingredients in children's supplements

By Cheryl Tay 02-Jan-2019 – NutraIngredients Asia

Indian regulator FSSAI has issued a gazette notification of its amendments to the standards for children's supplements in the Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011.

The new amendments, referred to as the Eleventh Amendment Regulations, 2018, will be implemented from the date of their Official Gazette publication; they are currently available on the regulatory body's website.

Under the regulation for cereals and cereal products, the category for malted and malt-based foods has a new sub-regulation on formulated supplements for children between two and three years old.

In the notification, the FSSAI states:

"Formulated supplements for children shall be of appropriate nutritional quality to provide additional energy and nutrients to complement the family foods derived from local produce by providing those nutrients that are either lacking, or are present in insufficient quantities. These foods may be presented in any other age-suitable food format."

Seeing to better cereals

The notification then elaborates on suitable raw materials and ingredients permitted for usage in such foods, starting with cereals. The FSSAI recommends that all milled cereals be processed with the purpose of lowering fibre content when needed, in order to eliminate 'anti-nutrients' such as phytates, tannins (and other phenolic materials), lectins, trypsin and chemo-trypsin inhibitors, as these can compromise protein quality and digestibility, amino acid bio-availability and mineral absorption. "Appropriate enzymes for decreasing the fibre content and anti-nutrients may be used during such processing. Cereals as a source should mainly contain carbohydrates and significant quantity (8-12%) of protein," states the notification.

Giving peas a chance

When it comes to legumes and pulses (such as chickpeas, cowpeas, lentils, peas, green gram, kidney beans, soya beans) that contain a minimum of 20% protein on a dry basis, the FSSAI recommends fortification with Lmethionine, an essential amino acid. As with cereals, the FSSAI recommends processing methods that will reduce 'anti-nutritional factors' like phytates, lectins, as well as trypsin and chemo-trypsin inhibitors. The notification adds: "Soya, when used, must contain low levels of phytoestrogens. Lectins may be reduced by moist heat treatment; trypsin inhibitor activity by heating to high temperature or prolonged boiling; phytates may be reduced enzymatically or by soaking; phytoestrogens by fermentation. Field beans and fava beans shall not be used due to favism." Favism is a haemolytic response to consuming fava beans, and indicates possible glucose-6-phosphate dehydrogenase (G6PD) deficiency, an inborn error of metabolism (IEM).

Oil be watching you

In addition to the aforementioned 'anti-nutrients', the FSSAI recommends that gossypol and urease activity be reduced when processing flours, protein concentrates and protein isolates of oil seeds. The regulator also lists its preferred forms of flour for different seed, bean and nut types (for instance, whole ground and defatted flour should be made from sunflower seeds), saying, "Defatted oilseed flours and protein isolates, if produced and appropriately processed for human consumption, can be used as a good source of protein (47% to 95%)." Also detailed are recommendations for fats and oils, which "may be added in adequate quantities for the purpose of increasing the energy density of the product" , but should not contain partially hydrogenated fats.

Further fortifications

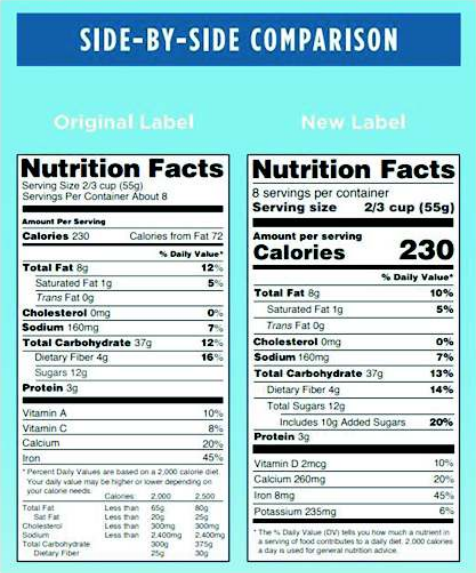
The FSSAI also lists other ingredients that are permitted for fortification purposes in supplements for children, such as digestible carbohydrates, protein isolates, concentrates and hydrolysates. The regulator adds: "Probiotic ingredient(s) and prebiotic ingredient(s) as provided under schedule VII and schedule VIII, respectively, of the Food Safety and Standards (Health Supplements, Nutraceuticals, Food for Special Dietary Use, Food for Special Medical Purpose, Functional Food and Novel Food) Regulations, 2016 along with other requirements laid down under the said regulations."

At the same time, algal and fungal oil as sources of DHA and ARA and related claims are permitted, so long as DHA makes up a maximum of 0.5% of total fatty acid content. The ratio of DHA to ARA should also be a minimum of 1:1, provided that DHA content does not fall below 0.2% of total fatty acids. The notification also includes recommendations for carbohydrates: "Carbohydrates such as sucrose, dextrose and dextrins or maltodextrin, maltose and lactose (are permitted) provided that the energy from added sugar per 100g of the product shall not exceed 10 percent of the energy of the product."

Formulating rules for formula

Beyond supplements for children aged two to three, the notification includes essential requirements for infant nutrition. These requirements dictate that the energy density of infant foods must be at least 4kcal per gram on a dry basis, while the maximum moisture-by-weight should be a 8% and the maximum fat by weight should be 7.5%. It adds: " The product shall conform to the microbiological requirements of 'Follow-up formula' given in Appendix B of the Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011."

It then lists the food additives permitted for use in the preparation of formulated supplements for children in 100g of product that is, according to the manufacturer's instructions, ready for consumption. These additives include emulsifiers like lecithins and diglycerides, acidity regulators like citric acid, and antioxidants like alpha-tocopherols, in addition to thickeners, and anti-caking and raising agents.



Study: What kind of impact does food labeling have on consumption?

By Mary Ellen Shoup 14-Jan-2019 – Food Navigator

To what extent do food labels encourage healthier eating? A study led by researchers from the Friedman School of Nutrition Science and Policy at Tufts University assessed the effectiveness of different types of food labels on consumers' eating behaviors.

"Many old and new food policies focus on labeling, whether on food packages or restaurant menus. Remarkably, the effectiveness of these labels, whether for changing consumers' choices or industry product formulations, has not been clear," senior and corresponding author Dariush Mozaffarian, M.D., Dr.P.H., dean of the Friedman School, said. "Our findings provide new evidence on what might work, and what might not, when implementing food labeling." A pooled analysis (published in the American Journal of Preventative Medicine) of 60 interventional studies comprised of two million unique observations were reviewed, including consumer reported dietary intakes, purchases, and sales receipts (published between 1990 and 2014). Across all studies, the average intervention duration was 69.8 weeks (range: 3 days to 9 years), except for laboratory studies, which were typically conducted over one to three sessions. In 14 studies, food labeling was combined with other components such as education, mass media campaigns, economic incentives, or direct regulation (restrictions, bans, requirements of the contents or availability of certain nutrients or food/beverage items). In May 2016, the USA FDA announced updates to nutrition facts labeling that included new standards on serving sizes of foods, highlighting calorie counts in larger font, and calling out added sugar content. The FDA extended the compliance dates for the Nutrition Facts and Supplement Facts label final rule and the Serving Size final rule, from July 26, 2018 to Jan. 1, 2020, for manufacturers with $10 million or more in annual food sales. Manufacturers with less than $10 million in annual food sales would receive an extra year to comply – until Jan. 1, 2021.

Food labels and healthier eating?

According to researchers, product food labeling – which included standardized provision of nutrition or health information and other health-related claims, icons, symbols, and logos – reduced consumers' intake of calories by 6.6%, total fat by 10.6%, and other unhealthy food options by 13%. Labeling also increased consumers' vegetable consumption by 13.5%, researchers noted. However, labeling did not significantly impact consumer intakes of other targets such as total carbohydrate, total protein, saturated fat, fruits, whole grains, or other healthy options. Researchers also examined the effects of label type, placement, and other characteristics. No consistent differential effects were found by label placements (menu, package, other point-of-purchase), label types (e.g., traffic light, nutrient content), type of labeled products, whether labeling was voluntary or mandatory, or several other factors. The study's findings suggest that the general presence or absence of information may be more relevant to consumers and industry than the specific type of label.

Industry responses and reformulation

The study also accounted for the impact of food labeling policies on industry responses in the form of product reformulation by food and beverage manufacturers. For example, the mandatory addition of trans fat content on the Nutrition Facts label led some food and beverage manufacturers to reformulate their ingredients. Reformulation outcomes were evaluated by six studies and researchers found that food labeling policies significantly reduced trans-fat content (-64.3%) and sodium (-8.9%). No significant effects of labeling were identified for industry formulations of total calories, saturated fat, dietary fiber, other healthy components (e.g., protein and unsaturated fat), or other unhealthy components (e.g. total fat, sugar, and dietary cholesterol), researchers noted. "For industry responses, it's interesting that the two altered components-trans fat and sodium-are additives," Mozaffarian added. "This suggests that industry may be more readily able to alter additives, as opposed to naturally occurring ingredients such as fat or calories, in response to labeling. It will be interesting to see whether this will translate to added sugar, newly added to the Nutrition Facts Panel on food labels in the United States." The FDA defines added sugar as "sugars that are either added during the processing of foods, or are packaged as such, and include sugars (free, mono- and disaccharides), sugars from syrups and honey, and sugars from concentrated fruit or vegetable juices that are in excess of what would be expected from the same volume of 100 percent fruit or vegetable juice of the same type."

Calorie-labelling may change the way your brain responds to food

Reviewed by James Ives, Mpsych Dec 21 2018 in News Medical

Seeing pictures of food with calorie information not only makes food less appetizing but it also appears to change the way your brain responds to the food, according to a Dartmouth-led study published in PLOS ONE.

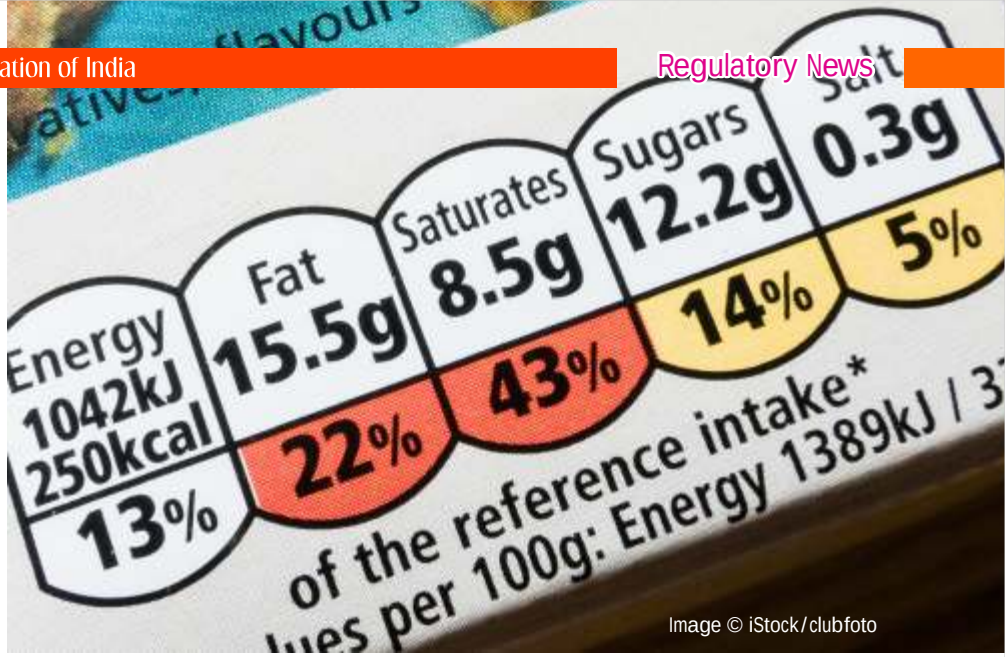


Image © iStock/clubfoto

When food images appeared with the calorie content, the brain showed decreased activation of the reward system and increased activation in the control system. In other words, foods that you might otherwise be inclined to eat became less desirable once the calorie content was displayed.

The study is the first of its kind to examine how your brain makes food choices when calorie information is presented. The results are timely given that earlier this year, certain food chain establishments had to comply with the U.S. Food & Drug Administration's menu labeling law requiring the disclosure of calorie information on menus and menu boards. In addition, according to the Centers for Disease Control and Prevention, obesity affected nearly 40 percent of U.S. adults in 2015-16.

"Our findings suggest that calorie-labeling may alter responses in the brain's reward system when considering food options. Moreover, we believe that nutritional interventions are likely to be more successful if they take into account the motivation of the consumer, including whether or not they diet," says first author Andrea Courtney, who was a graduate student in the department of psychological and brain sciences at Dartmouth at the time of the study and is currently a postdoctoral student at the Stanford Social Neuroscience Lab at Stanford University.

For the study conducted at Dartmouth, 42 undergraduate students (ages 18 to 22) viewed 180 food images without calorie information followed by images with calorie information and were asked to rate their desire to eat the food while in a functional magnetic resonance imaging scanner (fMRI). The images were obtained from either the food pics database or popular, fast food restaurant websites that post calorie information. The 22 dieters and 20 non-dieters viewed the same set of images, including foods such as a cheeseburger, a side of French fries or a slice of cherry cheesecake. On a scale from 1 to 4 (1 = not at all, 4 = very much), they indicated how likely they would be to eat the food in the dining hall.

While dieters and non-dieters alike rated calorie-labeled foods as less appetizing, this effect was strongest among dieters. Further, the researchers analyzed responses in two brain regions that motivate eating behavior: the nucleus accumbens (NAcc) and the orbitofrontal cortex (OFC). Although all participants showed a decrease in activation in these areas when calorie information was present, dieters showed more similar activation patterns in the left OFC for calorie-labeled and unlabeled foods. This finding suggests that dieters may consider calorie information even when it isn't explicitly present and builds on previous research suggesting that the presence of health cues can lead to healthier food decisions.

"In order to motivate people to make healthier food choices, policy changes are needed that incorporate not only nutritional information, including calorie content, but also a public education component, which reinforces the long-term benefits of a healthy diet," added senior author Kristina Rapuano, who was a graduate student in the department of psychological and brain sciences at Dartmouth at the time of the study and is currently a postdoctoral student at the Fundamentals of the Adolescent Brain Lab at Yale University.

Courtney is available for comment at: acourtne@stanford.edu. In addition to Courney and Rapuano, former undergraduate honors student in psychological and brain sciences at Dartmouth, Emma PeConga, now a graduate student in clinical psychology at the University of Washington, and Dylan Wagner, an assistant professor in psychology at The Ohio State University, also served as co-authors of the study.

Increased control? Visible calorie content may alter how desirable foods appear to consumers

03 Jan 2019 Nutrition Insight

Foods appear to become less desirable when their calorie content is visible, a Dartmouth College study has found. Among participants, seeing pictures of food with calorie information not only made food less desirable, but it also appeared to change the way the brain responded to the food. Making calorie information available alongside food, via menus, for example, has been on the obesity-fighting agenda for a number of countries, including the UK and the US..

Published in PLOS ONE, the study noted that among participants, the brain displayed decreased activation of the reward system when calorie content appeared alongside images of food and increased activation in the control system. “Our findings suggest that calorie-labeling may alter responses in the brain's reward system when considering food options. Moreover, we believe that nutritional interventions are likely to be more successful if they take into account the motivation of the consumer, including whether or not they diet,” says first author Andrea Courtney, a postdoctoral student at the Stanford Social Neuroscience Lab at Stanford University.

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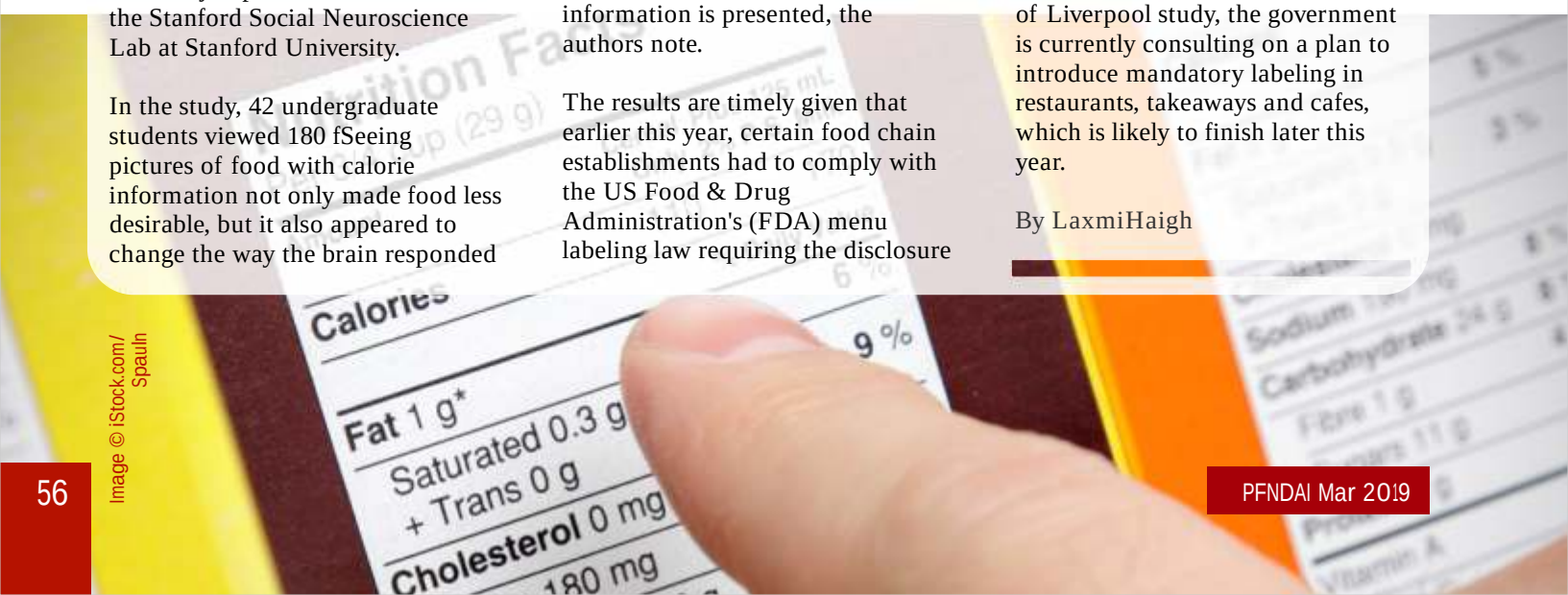
“In order to motivate people to make healthier food choices, policy changes are needed that incorporate not only nutritional information, including calorie content but also a public education component, which reinforces the long-term benefits of a healthy diet,” adds senior author Kristina Rapuano.
The study is the first of its kind to examine how your brain makes food choices when calorie information is presented, the authors note.

The results are timely given that earlier this year, certain food chain establishments had to comply with the US Food & Drug Administration's (FDA) menu labeling law requiring the disclosure of calorie information on menus and menu boards. In addition, according to the Centers for Disease Control and Prevention, obesity affected nearly 40 percent of US adults in 2015-16.
Although the idea behind the new rules is to help US consumers make informed decisions about the foods they eat, there is still debate around whether menu labeling will benefit their health.

In the Journal of Public Policy & Marketing, for example, researchers from New York University have noted that despite the rapid and widespread adoption of policies to require calorie counts at restaurants, most studies of calorie labels in fast-food restaurants in places that have already adopted labeling, including New York, have found little evidence that fast-food consumers are changing their behaviors in response to menu labels.
On the other hand, research from the Perelman School of Medicine at the University of Pennsylvania suggested in 2016 that adding color-coded or numeric calorie labels to online food ordering systems can help reduce the total calories ordered by about 10 percent when compared to menus featuring no calorie information at all.

In the UK, a Diabetes UK poll found that three-quarters of the public would like to see all cafes, restaurants and takeaway outlets display calorie information on their menus. According to a University of Liverpool study, the government is currently consulting on a plan to introduce mandatory labeling in restaurants, takeaways and cafes, which is likely to finish later this year.

By LaxmiHaigh



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- SNACKS
- MEAT
- GF GLUTEN FREE
- CEREALS
- DRESSINGS & SAUCES
- BEVERAGES
- ANTICAKING AGENTS
- NUTRITIONAL ITEMS
- DAIRY

Multifunctional Benefits

- Fiber Fortification to meet fiber Claims
- Fat and Calories Reduction
- Enhanced Texture and Structure
- Improved freeze thaw stability in frozen Products
- Better sensorial properties during the Shelf-Life
- Increased Yield
- Reduction of Product Cost
- Label Friendly

Ask our technical experts how they can provide further help to meet your specific finished product goals

Follow the fiber people!!

JRS INDIA

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