PFNDAI

PFNDAI Bulletin

NOV 2019

FOOD, NUTRITION & SAFETY MAGAZINE

WHY WE LIKE FOOD THAT WE LIKE

ALSO INSIDE

Phytosterols

Nutritional Yeast or NOOCH

Report of PFNDAI Seminar on "Exploring Wholesome Ingredients for Holistic Health"

PROTEIN FOODS AND NUTRITION DEVELOPMENT ASSOCIATION OF INDIA

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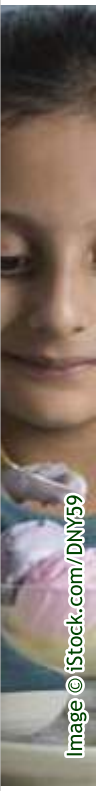
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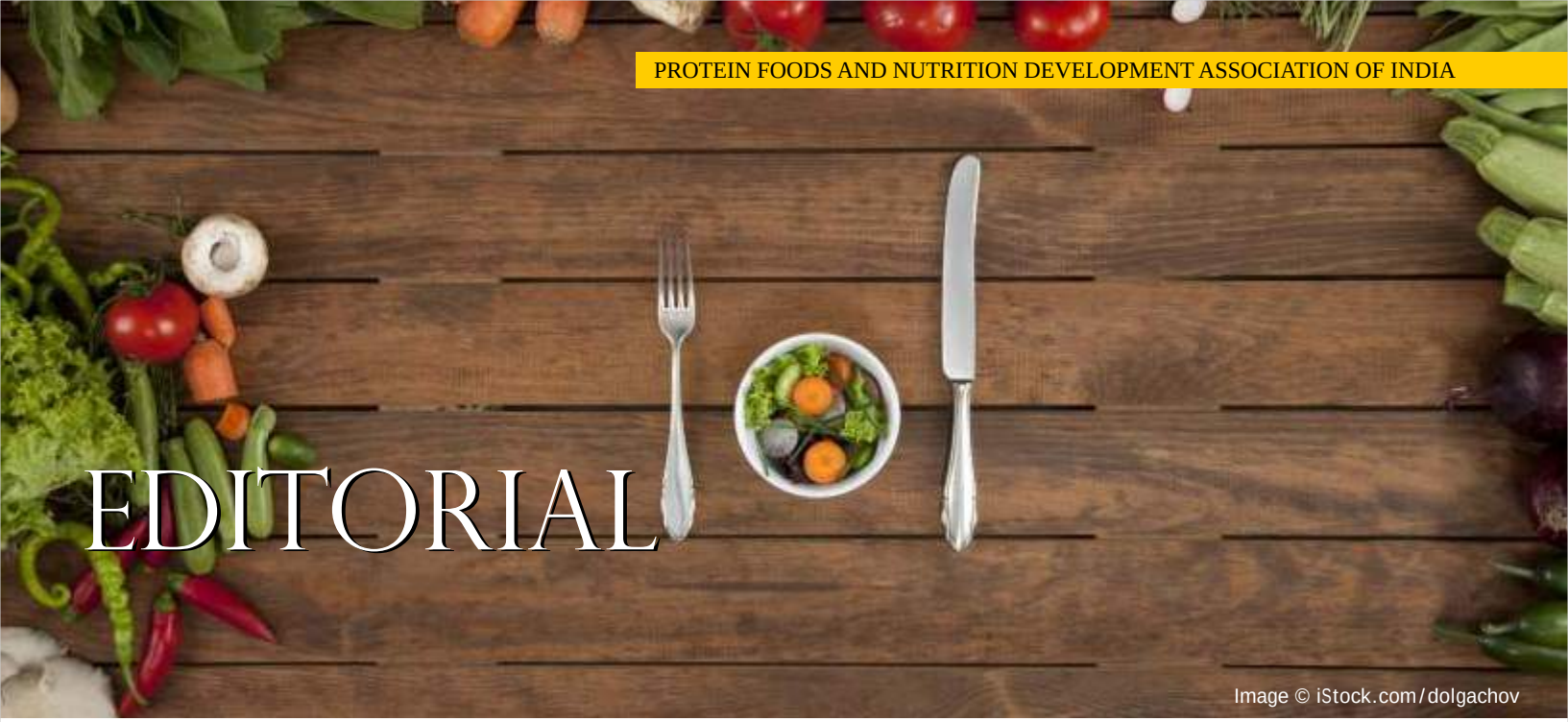

EDITORIAL

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Globally there is a good movement for healthier food and diet. Health professionals have been telling us for decades that we are consuming too much fat, sugar and salt and of course the calories and so we have an obesity epdemic seen globally. In India also we have the problem and FSSAI started the movement of 'Aj Se Thoda Kam' which very nicely advocates reducing fat, sugar and salt from our foods.

Some of the fast food chains have also started responding to this seeing that there is opportunity in making healthier food equivalents in their menus. However, they encountered some problems. One chicken fast food chain started in UK the healthier items. They used less salt in their recipes. They baked or grilled in these healthier versions. They had regular items also.

They had to discontinue this as there was no demand. They said their regular customers had particular products in their mind and they wanted that and nothing else. The healthier versions did not taste as well. So they rejected.

The company is not giving up although they withdrew the healthier versions. They decided to make changes in salt and fat little by little. Small changes are not easily noticeable and customers will not complain. After a while they get used to new levels of fat and salt. Thus gradual changes is very important. Sudden and marked changes causes a lot of problems.

Same thing can be done with sugar as well. Just reducing drastically or substituting fully or largely with sweeteners will have a lot of resistance. Thus the changes must be gradual.

Many studies have shown that red meat may be healthier than white meat and also that plant protein may be healthier than the animal protein. Health professionals including nutritionists, dietitians and medical doctors have been advocating switching over from red meat to chicken and also further eating vegetarian than non-vegetarian foods.

Consumers have been heeding this advice and have started consuming a larger proportion of foods and of protein requirement from either chicken, fish etc. Also they have started increasing vegetarian foods replacing partly the non-veg counterparts. There are some companies who are developing meat-like products out of vegetarian ingredients and then there are some who are developing bioreactors for making such ingredients.

The changes have to be made but we should not attempt the changes overnight. People have been eating these foods for decades so in order to make them like alternatives is going to take time. It is always better to make changes gradually and thus as the Rajkumar's video states "Aj se thoda kam". So we must make small changes and get used to the new level of fat, sugar and salt and then further reduce them until we reach the desired level of consumption.

Prof Jagadish Pai,
Executive Director,
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WHY WE LIKE FOOD THAT WE LIKE

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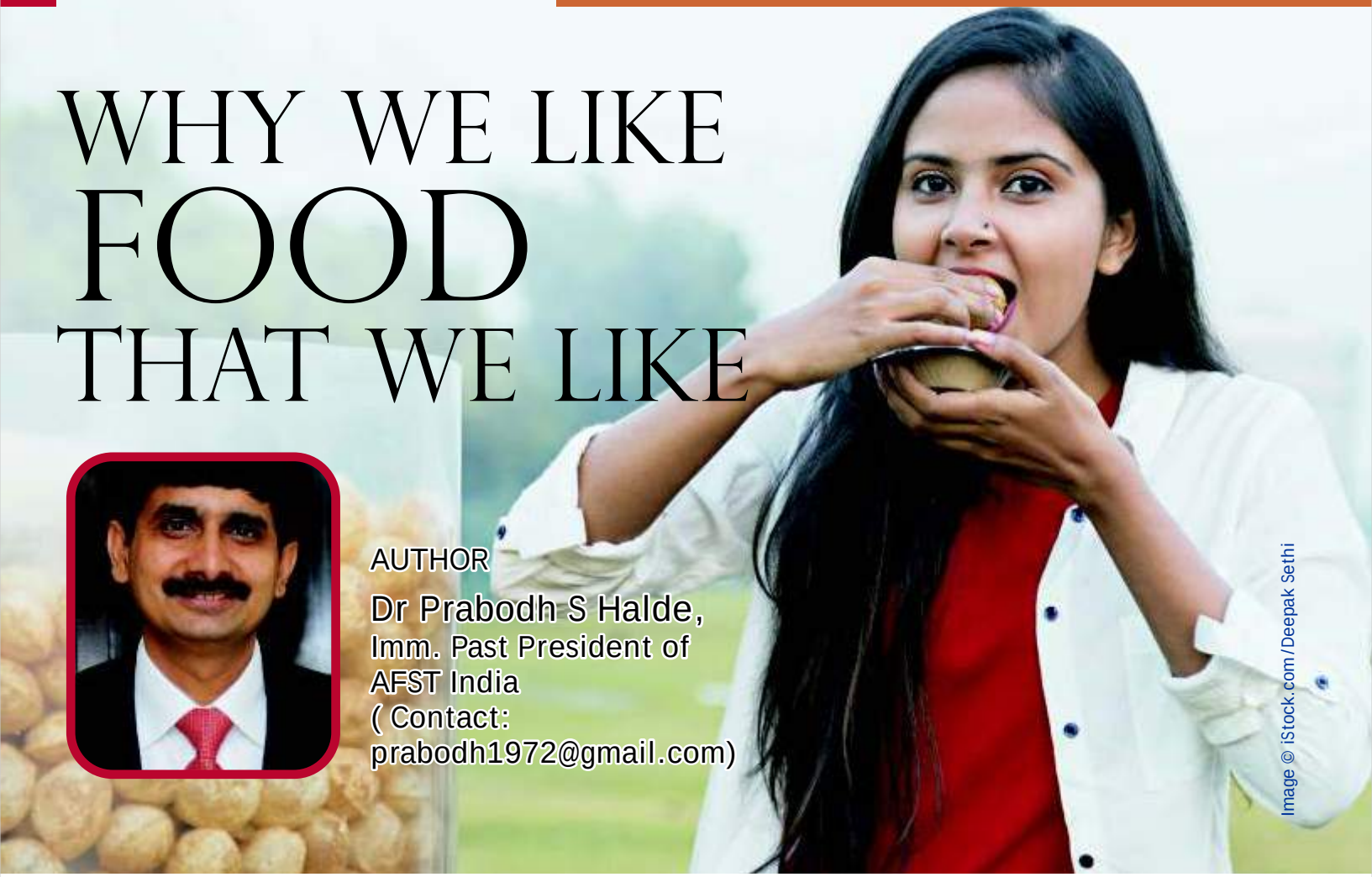

When I was a kid I used to like jaggery and that too the wonderful yellow one from Kolhapur which had a special sweetness as well as a little salty taste. In those days there was a strict control on eating and as a kid you were not allowed to eat what you wanted, instead your mother or other elders used to give what was needed. I remember I used to go to my aunt's place to eat that particular jaggery and satisfy my taste buds. Everyone's childhood is associated with similar memories. The big question is why we like (food) that we like?

Let us first understand the science of taste and then we will move on to the more complex part of why we like some food over others.

Science of taste

When you eat any food, you first chew it (rather you should!) and saliva starts acting on the food and the first sub-process of digestion starts at the mouth itself. You have over 4000 taste buds which are located on the top and sides of the tongue which are found inside tiny bumps called papillae. These papillae are super tasters and they can detect all taste sensations. So when you eat or drink anything, food first comes in contact with the taste buds. These taste buds have tiny finger-like projections called taste pores.

At the bottom of each taste bud there are nerve fibres, so once food/drink comes in contact with these taste cells, these nerve fibres transmit signals to large nerves called cranial nerves. These cranial nerves carry taste sensations to the brain and the processing of the taste takes place.

The brain is the main organ which decides the taste of the food based on your own programming. The brain programming is also based on your own design of childhood remembrance. All these processes happen in a fraction of a second and you experience the taste of that food. Thus taste is always associated with some memories or stories. At the same time, the same process takes place due to the food aroma /flavour and after the combined reading you take the final decision regarding the taste. The brain is the main decision maker here based on your programming of basic taste as it happened in your childhood.

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Generally your brain can detect five basic tastes viz. sweet, salty, bitter, sour and savoury and thousands of their combinations.

As per Ayurvedic tradition they are called Rasas, the Sanskrit word for taste. In our tradition it has been emphasised that during the formative years (0.5 to 7 years) children should be exposed to all Rasas so he/she can develop all the taste programming in the brain. Ayurveda recognizes six tastes, each of which has a vital role to play in our physiology, health, and wellbeing. The sweet, sour, salty, pungent, bitter, and astringent tastes combine in countless ways to create the incredible diversity of flavours we encounter throughout our lives. Now you may recall how your mother used to give you a bitter vegetable when you were a child. Our Indian tradition has always associated various Rasas (different foods) with different festivals and automatically we got exposed to various Rasas i.e.tastes.

Now let's see why we like some food and hate some others - Liking of food is a completely physiological process which is programmed in our mind due to various factors at the growing age or formative years.

However, there are main 3 factors or reasons which have created that liking or disliking:
1) Flavour-nutrient learning
2) Taste-flavour learning
3) Social learning

In 'flavour-nutrient learning', we learn to form positive associations between the flavour/ taste of a given food and what that food does to our bodies. If you like mango ice-cream the most, probably you may have learned over time to associate mango flavour and the energy that comes from the sugar. Here your mind has paired the taste in your mouth, of that flavour and the energy which you get after ingestion. This whole process is driven by our own intelligence i.e. Natural Intelligence. Your brain stores this experience and every time you eat that particular food you enjoy the experience again and that is so satisfying and you want to repeat the eating. Same process accounts for a dislike of certain foods when your brain has developed a dislike for some particular flavour/food or of that nutrient. So when some people don't like a particular vegetablelike ladies fingers(okra or bhendi), here the principle is the same - during your formative years your brain developed some dislike for that vegetable. Maybe the first time you tasted that vegetable, it was not pleasant due to high chilli or salt content, and the whole experience was so bad that an unfavourable memorywas created in your brain so you still dislike that vegetable though it has been prepared in an appetizing way now. However, creating such a dislike does not happen overnight.It is a slow process and once it is impressed in our permanent memory, it is very difficult to change. Hence you will understand that liking and disliking is not that much physical but it is more on an emotional level. You will often be surprised to notethat some food which is really bad in taste is liked by some people – it is all about brain programming. These impressions are long lasting and very difficult to change. Some scientists also attribute it to genes.


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In the'taste-flavour learning' phenomenon, once you develop a familiarity with some particular food or nutrient, your brain starts making an association of that flavour/ nutrient with some other food and you start loving the taste then. If you like milk and sugar and if someone makes coffee with milk and sugar, you will like it. But then you will dislike black coffee since already in your mind you have developed an affection for sugar and milk and associated coffee with them. Hence you will start liking any food which has your favourite ingredients in one or other form.

In 'social learning' you start liking food just because of your parents and friends and it is a lifelong process. I remember that during my school days my grandmother use to give us roti and dal. Now the taste of that particular food is so strong in my mind that whenever I get an opportunity I love to eat it, preferring that food over 5-star dishes and I don't even mind eating it every day. This is social learning. Again this is a slow process and once you develop this taste during your formative years, it becomes your habit. In fact our flavour preferences begin to take shape in utero and continue forming as soon as we are born, so during pregnancy if a mother eats more spicy food, the child starts developing a love for spicy food. Similar to how Abhimanyu learned the art of war in his mother's womb, we have learned most of the tastes while in our mother's womb. Again in Indian tradition we have all kinds of sanskaar for pre and post pregnancy and that is the scientific reason for exposing the baby to all kinds of tastes and helping develop a liking for all foods. So if you have a sweet tooth, say thanks to your mother since you might have picked up that trait in your mother's womb!

Social learning is a very slow process and I have noticed that many of my friends have migrated to the USA but still, even after 20 years, they just love gharka khanaroti-dal over pizzas and burgers. Since the taste of roti-dal has been fixed in their permanent memory and socially we grew on that taste, so adaptation to new food became difficult. We being social animals, also learn new tastes over time and start accepting new foods. This could be because of the second principle of 'taste-flavour learning'. We like fatty food and when it comes in the form of pizzas, though the whole food is new to us but a particular ingredient is liked by the brain, we accept a whole new food. It is the same case with Kurkure – our brain has accepted the taste of besan and rice and when Kurkure gave us a product with the same composition in a different format, most of the people started loving it. These principles are very important for product development and to understand why in a particular geography only a few products sell. Consumer Research teams should analyze those reasons and factors for developing winning products.

Some products have failed in the market though they were very popular in other countries e.g. Sport Cola which was launched in the year 1998. The Indian population could not accept the same since there was no association of the cola taste with different flavours as we had grown up with a cola taste of either Coke or 'Thumsup'.

Food liking and disliking is a big science and once we understand the given principles it would be easy for us to succeed in the market with better product delivery or by identifying the reasons of consumer eating behaviour.


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PHYTOSTEROLS

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Cardiovascular is one of the major causes of morbidity and mortality worldwide.

A report in 2016 by the India State-Level Disease Burden Initiative CVD Collaborators indicated that overall, in 2016, 28.1% of the total deaths were attributable to cardiovascular diseases and to 14.1% of Disability Adjusted Life Years (DALYs). These figures are much higher than those for 1990 (15.2% and 6.9%), respectively. Among the various causes, high total cholesterol was a risk factor for 29.4% of cardiovascular DALYs and about one-third of the population (both sexes) had high total cholesterol.

In order to combat this problem and that of other non-communicable diseases, the world is increasingly looking towards diet and diet patterns ranging from ancestral diets, Paleo diets, Mediterranean diets as healthier options. One common factor among most of these diets is that they typically comprise a large amount of plant foods. Plant foods contain numerous phytochemicals that confer protection against chronic ailments including cardiovascular diseases, obesity, diabetes, and cancer. Perhaps our ancestors were better protected from cardiovascular diseases because their diets consisted of a substantial amount of plant foods and aconsiderable amount of fiber, phytochemcials as well as phytosterols that have been shown to have health benefits.

What are Phytosterols?

These compounds resemble cholesterol in structure and are exclusively present in plants (Figure 1). They differ from cholesterol only in the carbon side chain and the presence or absence of a double bond. Cholesterol is present in animal foods and is made/synthesized in the human body whereas phytosterols are exclusively synthesized by plants (hence their name). Cholesterol is present in the cell membranes of all animal cells except mitochondrial membranes whereas phytosterols are present in cell membranes of plants.They are present either in free form or they are esterified with long-chain fatty acids or with phenolic acids.

There are two classes of phytosterols namely sterols and stanols. Both sterols and stanols have a steroid ring, but sterols have a double bond and so are unsaturated compounds. In contrast stanols are saturated compounds that do not have a double bond. Examples of sterols are β-sitosterol, campesterol, and stigmasterol. Examples of stanols are sitostanol and campestanol. A major proportion of total dietary phytosterols, are sterols and stanols are estimated to comprise only about 10% of our total dietary phytosterols.

Figure 1a: Plant-derived sterols

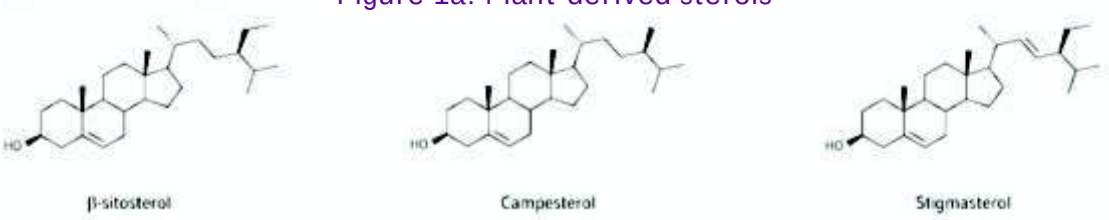

Figure 1b: Plant-derived stanols

According to the US, National Institutes of Health, there are more than 200 phytosterols.

Phytostanols do not occur much naturally except in wood pulp. Plant sterols can be esterified with fatty acids. This increases their solubility and enables their incorporation into different food products.The esters obtained are semi-liquid or liquid and their chemical and physical properties are comparable to those of edible fats and oils. Therefore, it is possible to use these for supplementing various processed foods. The sterols and stanols are immiscible with water, whereas the esters are soluble.

Commercially, phytosterols are obtained from plant oils such as soybean, rapeseed, canola, sunflower, corn oils or from "tall oil". The latter is a by-product obtained during manufacture of wood pulp. Commercially grown coniferous trees are generally the source.

In commercial manufacture it is important to ensure that sterols and stanols do not contain contaminants and other impurities in concentrations that may prevent or limit their use in foods or food products. Therefore, it is important to estimate and monitor the contents of heavy metals i.e. Arsenic, Lead, Cadmium, Mercury, pesticides, dioxins, furans, poly chlorinated biphenyls, polycyclic aromatic hydrocarbons. Analysis must be carried out on the pure ingredients and the finished food products. This is necessary in order to ensure that phytosterols, phytostanols and their fatty acid esters should not contain contaminants or other impurities in concentrations that may prevent or limit their use in food products.

Metabolism: In general, humans do not absorb much of phytosterols (less than 5% of dietary sterols and 0.5% of dietary stanols) that is in great contrast to that fact that we are able to absorb upto about 60 percent of dietary cholesterol. Like cholesterol, phytosterols are incorporated into mixed micelles and are then taken up by enterocytes. However, unlike dietary cholesterol, their absorption is inhibited and the phytosterols as well as unesterified cholesterol are transported back from the enterocyte into the intestinal lumen. The rate of transporting phytosterols back into the intestine is much greater than for cholesterol. Also, much smaller amounts of phytosterols are incorporated into chylomicrons. The liver picks up whatever phytosterols are in circulation and they are then rapidly secreted into bile. Therefore, serum phytosterol concentrations in humans are several hundred times lower than serum total cholesterol concentrations.

What are the benefits conferred by phytosterols?

Research on phytosterols shows that they may afford us protection against several health problems. Well - established results of scientific research indicatethat phytosterols help to reduce / lower serum total and LDL-cholesterol. Other possible health benefits are being studied.

Lowering serum LDL-cholesterol: High intakes of plant sterols or stanols have been found to reduce serum total and low-density LDL cholesterol. This effect was first demonstrated in humans by O J Pollak in 1953. Eli Lilly marketed phytosterols (Cytellin) for almost three decades between the mid 1950's to early 1980's as a pharmaceutical for treating elevated cholesterol.

Several mechanisms may be responsible for this effect: (a)they may displace cholesterol in the mixed micelles in the intestine, (b) they interfere with esterification of cholesterol and incorporation into chylomicrons within the enterocytes (c) promote hepatobiliary secretion of cholesterol into the intestinal lumen (d)increase the excretion of biliary and dietary cholesterol through feces. Also, expression of LDL receptors on the cell surface is upregulated, as a result of which, LDL is cleared from blood. Within the cells, genes that code for enzymes like 3-hydroxy-3-methyl-glutaryl-coenzyme A (HMG-CoA) reductase that are involved in synthesis of cholesterol and LDL receptors are suppressed. This helps to maintain cholesterol homeostasis in tissues, particularly in the liver and to reduce serum LDL cholesterol concentration. An intake of about 2 g/day has been shown to lower serum LDL-cholesterol by 8%-10%.

However, it should be noted that some persons do not have good efficiency for absorbing cholesterol and/or have a high rate of cholesterol synthesis. Such persons may not respond well to phytosterol therapy.

Protection against cancer/ anti - tumor effects: Several epidemiological studies suggest that phytosterols in the diet may reduce cancer risk at some sites like colon, breast and prostrate. They may afford protection through (a) directly inhibiting tumor growth by inhibiting proliferation, (b) inducing apoptosis and reducing invasiveness, (c) improving/strengthening

antitumor responses, (d) enabling the immune system to better recognize cancer cells, (e) influencing the growth of endocrine tumors and (f) altering sterol biosynthesis.

Studies on dietary intakes indicate that cancer-free individuals tended to have higher phytosterol intakes compared to women with either breast or endometrial cancer However, information related to phytosterols affording protection against cancer in humans is fairly limited. Also, the protective effect of other dietary components such as phytoactives, vitamins, minerals and fibre as well as being low in saturated fat cannot be discounted.

Phytosterols are sold as part of plant extracts/herbal preparations for urinary symptoms related to benign prostatic hyperplasia. It must be pointed out that not many well-controlled studies have been conducted to systematically examine the effect of phytosterols. Although, beneficial effects have been reported from trials using 60 mg to 130 mg of β-sitosterol preparations /day, further research is required to confirm these findings.

Anti-inflammatory effect:
Inflammation is considered to be one of the root causes of many non-communicable diseases. Most of the evidence related to anti-inflammatory effect comes from cell culture studies and animal studies, that indicate that phytosterols can reduce anti-inflammatory activity of macrophages and neutrophils.

Some reports indicate that phytosterols may help in skin care possibly due to anti-aging effects.

In which foods are phytosterols present?

Phytosterols are likely to be present in foods that have some fat content such as nuts, with the highest concentrations being naturally present in whole grains, beans/legumes, nuts and unrefined vegetable oils. Besides this, in many countries, foods and beverages with added phytosterols are now available commercially. There are several clinical trials documenting that when foods enriched with free or esterified phytosterols (sterols or stanols) in doses varying from 0.6 g to approximately 6 g per day are consumed daily, serum total cholesterol and LDL-cholesterol concentrations were lowered and that the reduction was higher when baseline LDL cholesterol concentrations were higher. This benefit was accrued even when the phytosterols were co-administered with statins.

Based on the results of numerous studies, it has been reported that phytosterols can reduce the risk of major coronary events and coronary heart disease. However, the effects of long-term use of foods enriched with phytosterols on cardiovascular risk is unknown.

Regulatory Status:
In the US, the Food and Drug Administration has authorized use of health claims on food labels that if foods enriched with plant sterol or stanol esters are consumed regularly, as part of a diet that is low in saturated fat and cholesterol, the risk of heart disease may be reduced. However, the European regulatory authority restricts such a claim to some fortified foods and mandates that such products are not intended to be used by individuals who have no requirement to control the blood cholesterol levels. Phytosterols have been granted GRAS status by the US FDA which requires that the daily dietary intake of plant sterol (≥1.3 g/day) or stanol esters (≥3.4 g/day) that has been associated with a reduced risk of heart disease should be consumed in two servings eaten at different times of the day with other foods, as part of a diet low in saturated fat and cholesterol.

Plant sterols and stanols added to a variety of food products are generally recognized as safe (GRAS) by the FDA. The EU Commission published Regulation 608/2004/EC in 2004 related to labelling foods with added plant sterols/stanols. It has recommended that intake of plant sterols and stanols from food products should not exceed 3 g/day, given that there is no evidence that higher intakes give health benefits and because high intakes may result in undesirable effects.

Many other countries have also approved their use including Australia, Switzerland, Norway, Iceland, Brazil, South Africa, Japan, Turkey and Israel.

Since the mid 1990's, phytosterols have been used as margarine additives. The dosages recommended for margarine and other foods are lower than the dosages of Cytellin that was marketed by Eli Lilly. Other than margarine, foods fortified with phytosterols include orange juice, cookies, energy bars, yogurt drinks, salad dressings, milk-based beverages, soy beverages, cereal products, sauces, sausages, candy chews etc.

Esters of phytostanols and phytosterols can be used as fat replacers or to modify the composition of fat blends and to soften margarine and spreads. The esters can be used to coat cereal products and so help to prevent sogginess in these products. They can also help to mask bitterness and so could be used to improve taste as well as reduce the amount of sweetener or sugar that is added to products like soy beverages.

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Stability: Both phytosterols and their esters are stable and are degraded to a limited extent during oil processing. However, when processing temperatures exceed 100 degrees C, especially in presence of oxygen, the phytosterol can be oxidized as would happen to cholesterol. However, the formation of oxidation products will be slow during shallow frying. At 160-2000C, frying of 5 to 10 minutes resulted in less than 1.3% of oxidation of sitosterol esters., although if there is free sterol, oxidation can go up to 2.5 to 5 %. Extent of oxidation would depend on the temperature, the duration of heating and the composition of the lipid matrix. Compared to phytosterols, phytostanols and their esters have better oxidative stability.

Phytostanols are generally heat stable and phytostanol esters also show an oxidative stability. It is important spreads that are meant to be used as spreads should not be used for frying purposes.

How safe are phytosterols?
In general, phytosterols are well-tolerated, although some persons have been found to have nausea, indigestion, diarrhea, and constipation. Information on long-term consumption beyond one year is not available. Upto one year, few adverse effects have been reported with regular consumption of plant sterols.

While phytosterols appear to be a great help, the possible disadvantages of taking these must also be recognized. Since they are structurally similar to cholesterol, they could replace cholesterol that is an essential structural component of our cell membranes. When phytosterols are present in the cell membrane, they have an adverse effect on the physical properties of the cell membrane, affecting some of the functions. In animal models, it has been observed that phytosterols could displace cholesterol in red cell membranes making them more fragile.

Some individuals have a rare hereditary disease called Sitosterolemia or Phytosterolemia. These persons absorb phytosterols from intestines and they have decreased excretion. Consequently, they have elevated serum concentrations, although their serum cholesterol concentrations may be normal or only slightly elevated above the normal range. Healthy persons have plasma plant sterol conc < 1 mg/dl whereas those who have this disorder have levels of 12-50 mg/dl. Such persons with sitosterolemia are at higher risk for premature atherosclerosis. Persons who have sitosterolemia must avoid phytosterol supplements and foods with added phytosterols.

It may not be advisable for pregnant or breastfeeding mothers to consume large amounts of phytosterols as there is not much scientific evidence about the use of these substances during pregnancy or lactation. Besides this, it is not recommendedfor normocholesterolemic children under 5 years of age becauseconsumption of plant sterols can affect adversely the absorption of fat-soluble vitamins, which is of concern that. In infants it has been shown that consumption of phytosterols upregulated cholesterol synthesis. Hence exposure in utero or in early life may affect gene expression and physiology in later life.

Other concerns are that studies show that plasma vitamin E concentrations were lowered when well-nourished persons consumed approximately 2.5 g/day. Similarly, reduction by 10-20% in plasma carotenoids has been reported in persons who were consuming phytosterol enriched foods.

Food Sources: We do not have estimates of phytosterol intakes from diet in India but in other populations it is estimated that the intakes range between 150 to 450 mg/day. Vegetarians and particularly vegans are likely to have higher intakes due to greater inclusion of plant foods in their diets. Although phytosterols are present in all plant foods, the highest concentrations are present in unrefined plant oils and nuts, seeds, whole grains and legumes.

The Indian Food Composition Tables (2017) gives the β-sitosterol content of different foods. In Table 1, foods are grouped based on their content of β-sitosterol .

Products from this test; base of yellow peas, carrots and onions

Food group	20-40mg/100g	41-60 mg/100g	61-100 mg/100g	>100 mg/100g
Cereals	Jowar, Ragi, Wheat, Parboiled rice	Maize tender, Quinoa, Bajra, Varagu, Wheat whole	Amaranth seeds, Maize dry, Samai	-
Pulses	-	Black gram whole & dal, Field bean, Green gram whole & dal, Horsegram	Bengal gram whole & dal, Lentil whole & dal, Moth bean, Dry peas, Rajmah, Red gram whole & dal, Soybean	-
Nuts and Oilseeds	-	-	-	Almonds, Cashewnuts, Garden cress seeds, Gingelly seeds black and brown, Groundnut, Linseed, Niger seeds black, Pine seeds, Pistachio, Safflower seeds, Walnut, sunflower seeds
Vegetables	Amaranth leaves, Betel leaves, Mint leaves, Drumstick leaves, Baby corn, Colocasia leaves green, Colocasia root, raw mango, Fenugreek leaves, Jackfruit seeds mature, Plantain stem	Jackfruit raw, Peas fresh	-	-
Fruits	Dates brown, Figs, Pummelo, Jackfruit ripe	Guava, raisins dried black, Tamarind pulp	Sapota	-
Spices and Condiments	-	-	Coriander seeds, Mace, Cumin seeds, Nutmeg, Turmeric, Fenugreek seeds, Black pepper, Poppy seeds	-

In conclusion, the recent recommendations in the position statement issued in 2017 by the Heart Foundation, Australia sums up what can be advised:
“In general, children (other than those with familial hypercholesterolaemia) and lactating or pregnant women do not need phytosterol enriched foods because it is not appropriate to reduce cholesterol absorption in these individuals” ;

When phytosterol-enriched foods are chosen, it is important that individuals otherwise consume a healthy balanced diet.

NUTRITIONAL YEAST OR NOOCH

AUTHOR –
By Queeny Bubna,
Sr Manager – Sales & Marketing
Anshul Life Sciences

Image iStock.com/RossHelen

When life gives you lemons – you ask for something more in proteins – or you ask for "Nooch"

The world is currently experiencing a protein revolution. High-protein, low-carbohydrate diets are the hottest and every food marketer in the known universe appears to want a piece of the protein pie. Body builders are snatching, grabbing, and gulping down protein shakes. Dieters are gobbling down protein bars (and shunning pasta) in hopes of quick weight loss.Your body uses protein to build and repair tissues. You also use protein to make enzymes, hormones, and other body chemicals. Protein is an important building block of bones, muscles, cartilage, skin, and blood. However, unlike fat and carbohydrates, the body does not store protein, and therefore has no reservoir to draw on when it needs a new supply. At the same time bodies need a modest amount of protein to function well.

Being fit is 80 percent your diet and 20 % exercise – it's often said you can't outrun your fork. Human beings don't eat Nutrients, they eat food. This phrase is very important in today's world because we want to eat healthy & tasty at the same time and it seems quite difficult. There is always this myth around food that what is healthy is not tasty and what is tasty is not healthy.

Nutritional yeast tends to break this myth – its affectionately called Nooch. So, what makes Nooch aka Nutritional yeast so special – is it its taste or is it the nutrient profile or both.

For those who don't know what nutritional yeast is – its deactivated yeast and can be had in various forms – as a salad sprinkle, as a soup enrichment, as a protein source – It can be added both to your flour and to your cheese. It can be easily be referred to as the Holy grail for vegetarians and can be added to all things cheesy. It can go with ease into popcorns as into cashews and can even be given as vegan parmesan cheese. It can be used both raw/ baked/ cooked.

It contains proteins, B vitamin complex and contains all the essential amino acids along with an excellent PDCAAS score of one which is difficult to beat even with higher and other more commonly used other proteins which have been part and parcel of modern lives. It provides sulphur containing amino acids which helps maintain a lean body mass allowing elderly to have an active lifestyle.It also has all your micronutrients chelated like Zn, Se, Cr etc.

Though "nutritional yeast" usually refers to commercial products, inadequately fed prisoners of war have used "home-grown" yeast to prevent vitamin deficiency. It contains certain carbohydrates — including trehalose and beta glucans — that can fight infection and support immune function.Trehalose is a disaccharide that helps maintain the health of brain cells.Beta-glucans, in particular, have been shown to have antitumor, anti-inflammatory, anti-obesity, anti-allergic, and anti-osteoporotic abilities.

This was about Nutritional yeast. Would you not like to taste it soon and find out more for yourself !!!

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Nutritional yeast is prepared from deactivated yeast and sold as food product. The most common strain used in Saccharomyces cerevisiae which is also used in bread making. Nutritional yeast is sold in flake or powder form and is yellowish in colour. It is popular among vegans and vegetarians for its high protein content. It is also used as condiment as it improves flavour of foods. It has excellent amounts of micronutrients including B-complex vitamins and certain minerals.

Its flavour may be described as nutty, cheese or creamy which makes it a good substitute of cheese for vegans who would not consume dairy products.

Nutritional yeast is prepared by growing yeast in nutrient medium for several days. The medium may contain glucose, sugarcane or beet molasses. When the growth is complete, it is filtered off, washed and dried. Although common yeast is S. cerevisiae, other strains are also used in proprietary products. These strains have different characteristics and properties than the one used in bread making and in brewery.

Commonly nutritional yeast contains about 45% protein and is high in most B-complex vitamins except B12, which may be added to nutritional yeast separately. It also contains very good amount of dietary fibre. Thus when a person is trying to improve the diet by increasing the protein content along with fibre, nutritional yeast is the best option. Especially for vegetarians and vegans who also miss out on many B-vitamins this is an excellent ingredient improving the nutritional status of food.

COMING EVENTS

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6th Annual Food Quality & Safety Congress
Nov 28-29, 2019
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T: +91 22 6608 9643
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FICCI Young Leaders Summit
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T: +91-9999448952
E: youth@ficci.com

Nepal 5P Intl Expo
Dec 20-22, 2019
BhrikutiMandap, Kathmandu, Nepal
T: (+91) 8287070484
E: snehal@futurextrade.com

Snack & Bake Tech
Mar 19-21, 2020
Bombay Exhibition Centre, Mumbai
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REPORT OF PFNDAI SEMINAR ON EXPLORING WHOLESOME INGREDIENTS FOR HOLISTIC HEALTH

Held On 18th October, 2019
At Hotel Kohinoor Continental, Andheri

AUTHOR –
By Ms Swechha Soni,
Nutritionist, PFNDAI

Protein Foods and Nutrition Development Association of India organised a Seminar on Exploring Wholesome Ingredients for Holistic Health on 18th October 2019, which was sponsored by Vista Processed Foods, DuPont, AAK Kamani and DKSH.

The registration Kit for the seminar was sponsored by Fine Organic Industries.

The souvenir of the Seminar was supported by Pepsico, JRS Rettenmaier, Marico, Kellogg India, Mondelez and Ruchi Soya.

There was also a stall by Anshul Life Sciences displaying their products (variants of soup mix) that was also prepared and served to the delegates for tasting.

Before starting the sessions, all the members present for the seminar observed a moment of silence for Dr. C. Gopalan who passed away on 3rd October 2019.

Inaugural Session:

Dr. JS Pai, Executive Director, PFNDAI welcomed all the honourable speakers of the Inaugural Session- Dr. B. Sesikeran, ex-NIN and Chairman- Scientific Affairs Committee of PFNDAI; Dr. KSMS Raghavarao, Director-CFTRI Mysore and Member-Scientific Affairs Committee of PFNDAI; Mr. Bhupinder Singh, Chairman- PFNDAI and Dr. Shatadru Sengupta, Vice Chairman-PFNDAI.

The session started with the Welcome Address by Dr. Shatadru Sengupta where he gave a delightful welcome address to all the delegates of the seminar. He also threw some light on the need of this seminar and the varied topics that would be covered throughout the day. Moreover, he added about the people's lifestyle today and the related diseases and how a balanced diet can help keeping them away.

There was a Presidential address by Mr. Bhupinder Singh who shared with all "Status of the Indian Food Industry" through his presentation. He talked about the current trends of the food industry and also mentioned the key factors of the growth drivers of Indian Food Industry. He also shared an insight of the Indian Mega Food Parks. He gave the classification of the Indian food Industry- Primary and value Added (Secondary & tertiary) and stated their inclusions. He mentioned about the export foods from different states of the country. He also mentioned about the smaller trends that may shape future trends.

Next, was the Inaugural address by Dr. B. Sesikeran who set the base of the Seminar by his presentation on "Whole Foods to Wholesome Ingredient based Holistic Health". He first simply defined Health and its types, focusing more on Mental and Physical Health. He also added that the best way to maintain Health is to preserve Health. He further defined Whole Foods and Wholesome Ingredients and gave a comparison between both. He focused more on the wholesome ingredients that carry the active components that give quicker benefits than the whole food.

This was followed by a Keynote address by Dr. KSMS Raghavarao.

Dr. Shatadru Sengupta, Sr Director Legal & Company Secretary Hardcastle Restaurants Pvt Ltd giving Welcome Address

Mr. Bhupinder Singh - CEO: Vista Processed Foods Pvt. Ltd. giving Presidential Address

From L- Dr. Shatadru Sengupta, Mr. Bhupinder Singh, Dr. B. Sesikeran, Dr. KSMS Raghavrao & Dr. Pai

Dr. B. Sesikeran - Ex- NIN giving Inaugural Address

Dr. KSMS Raghavarao-Director: CFTRI giving Keynote Address

He gave a presentation talk on New Directions in the Food Industry- Indian & Global Scenario. He focused more on the technologies in the food industry and talked about the major R&D areas- Transitional Research, Technology Development, Engineering Sciences, Food Production & Safety. He also put some light on the Need for total Innovation, Role of Start-ups. He talked about a lot of Innovative technologies that led to some really innovative and nutritious products.

The Inaugural Address was ended by an Inaugural Vote of Thanks by Ms. Swechha Soni.

Dr Dinesh Kumar from National Institute of Nutrition then gave information about the World Congress of Natural Products to be held in Hyderabad in December and invited delegate to participate in the same.

Technical Session I:

Next was the First Technical Session chaired by Dr. KSMS Raghavarao and Co-Chaired by Dr. Sanjog Surve, Director- R&D, Abbott Nutrition. This session was on Proteins and Ayurvedic foods and commercialisation of Health Foods. Dr. Raghavarao and Dr. Surve gave opening remarks for the session talking about various opportunities in the field of Ayurveda and Proteins.

The first talk was by Dr. Ashwinikumar Raut, Director, Clinical- Research & Integrative Medicine who talked on Ayurvedic Ingredients for Healthier Foods. He talked about the Spectrum of Ayurvedic Ingredients for Healthcare and also explained the Health- Disease Spectrum which is Pro-disease > Pre-disease > Disease. He also introduced a new concept of AM food i.e., Ayurvedically Modified Food. He also mentioned about the usage flexibility of Ayurvedic Ingredients. He also mentioned about the Formal Regulations for Herbs and Botanicals as Health Foods in different countries. He stated what's important in Ayurvedic Foods are the Selection of Ingredients, Dose range and Process ambiguity.

Next talk in the session was by Ms. Parina Garg, Team Leader- Beverages, DuPont on Capturing the opportunity for Protein in Sports Nutrition. The main segments she covered were the unique health & sustainable benefits of soy protein, the evidence supporting protein and soy dairy blends for sports nutrition and the protein opportunities in foods and beverages targeting the sports nutrition consumer. She also gave a comparison of soy vs. dairy protein.

The last talk of the session was by Mr. Deepak Gunvante, CEO- DG Associates PTE Ltd. He talked on Critical Success Factors for Commercialisation of Health Foods. He stated that 80% of the new product launches fails within 12 months and the solution to this problem is to understand the four factors brand acceleration system- (1) What are the Trends? (2) Where to Play? (3) How to Win?

Post the individual talks, there was an interactive session between the Chair, co-chair, speakers of the first session and the audience wherein the speakers cleared doubts of the audience and interacted more on the opportunities of the Protein and Ayurvedic ingredients. Dr. Sanjog Surve summarised the entire session giving closing remarks.

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Glazing Gel
Marzipan
Vital wheat Gluten
Enzymes
-American Brownie
Bread Mixes


Audience

Technical Session II:

The Second Technical Session was focused on Oils & Fats, carbohydrates and innovative ingredients for healthy foods. The session was chaired by Ms. Madhavi Trivedi, Sr. Associate Director-Nutrition & Scientific Affairs-Kellogg Emerging Markets and Korea and was co-chaired by Ms. Naaznin Husein, National executive Committee member-IDA. Ms. Madhavi Trivedi gave the opening remarks for the session focusing on the macronutrients and its importance in our diet. She mentioned that an important macronutrient like Carbohydrates must be included in the diets for driving energy and other metabolic processes that depend on it. She also added that Fats and Oils are necessary in the foods for it to be palatable. Ms. Naaznin Husein added to her remarks saying that a balanced diet is one that includes all the macronutrients in the right proportions.

The first speaker was Mr. Prakash Chawla, CEO- AAK Kamani who shared with the delegates the Healthier Aspects of Oils & Fats. He briefed about the importance of vegetable oil in our diet. Fats contribute to the taste and mouth feel of the food by various means. He also emphasized on the use of vegetable oil in bakery, confectionery, nutrition, culinary, ice cream. He also briefly covered about the SFA, MUFA and PUFA. He concluded by with discussing some emerging trends and stating that the key to being Healthy is to consume everything in moderation.

The next speaker was Dr. Jagmeet Madan, IDA- National President who spoke on Importance of Carbohydrates in Diet for Health. She started with explaining of different types of carbohydrates. She also talked about Resistant Starch and its applications. She shared a study of effect of resistant starch rich diet on faecal micro flora and biochemical parameters in healthy adults. Talking about Dietary fiber she covered some studies on Inulin and Fructo-oligosachharides showing some health benefits. She also gave an overview of the use of carbohydrates in Food Industry which covers wide categories.

The next talk of the session was by Ms. Priya Mundra, Application specialist, DKSH. She talked on the Use of innovative Ingredients for making Healthier Food Products. Defining Holistic Health she mentioned about the buzz all over about healthy food products- fat reduction, sugar reduction, salt reduction, protein enrichment, fiber enrichment, etc. She stated the various ways and alternate ingredients and their applications to follow the trend to make healthy food products.

Post the individual talks; there was an interactive session between the Chair, co-chair, speakers of the second session and the audience trying to solve some of the myths and misunderstandings of consumption of fats and carbohydrates. Ms. Naaznin Husein summarised the entire session giving closing remarks.

Panel Discussion:

Post the technical sessions was a panel chaired by Mr. Shaminder Pal Singh, Director-Scientific & regulatory Affairs, Pepsico and Co-chaired by Ms. Anshu Gupta, Health & Nutrition Leader- General Mills.

The Panel consisted the following speakers: Dr. V. Sudershan Rao, Ex-NIN, Dr. K. Balasubramanian, Vice President Foods, Bee Pharmo Labs, Dr. Shobha Udipi, Hon Dir. MRC, Kasturba Health Society, Mr. Nikhil Kamat, Sr. Vice President –Operations, Fine Organic Industries, and Dr. Bhavna Sharma, Head-Nutrition Science Dept. ITC-Foods Division

Mr. Shaminder Pal Singh gave the opening remarks for the Panel discussion. The Panel was very well moderated by Ms. Anshu Gupta. She tried to connect the missing loops in the sessions by raising specific questions to the panel for their expert knowledge sharing. The panel discussed about the regulatory, analytical and the safety aspects of the emerging and already existing healthy food ingredients. Scope and opportunities of the innovative health ingredients were also discussed. The ingredient stability while incorporating it into a final food product was of a concern that was deliberated by the panel. The delegates interacted with the panel by addressing certain queries. The panel discussion ended successfully after having an interactive session. Ms. Anshu Gupta gave the closing remarks summarizing the discussions.

A formal Vote of Thanks was given by Ms. Anuja Rawool. We thank our sponsors and other supporters and the delegates for actively participating in the Seminar.


Audience

AUDIENCE

Anshul Stall: Ms. Queeny,
Ms. Varsha & Mr. Ishrani

Dr. Bhavna Sharma

Dr. K. Balasubramanian

Dr. Shobha Udipi

Standee

Dr. Nikhil Kamat

Dr. Sudershan Rao

Mr. Shaminder Pal Singh

Ms. Anshu Gupta

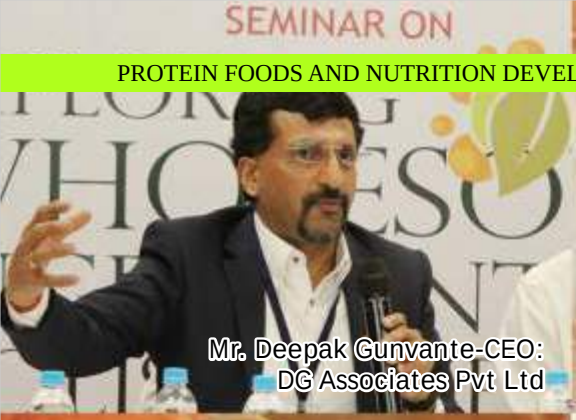
Panel Discussion

AUDIENCE

BANNER

FRIENDS

Panelists with Organisers



Mr. Deepak Gunvante-CEO:
DG Associates Pvt Ltd

From L Ms. Parina Garg, Mr. Deepak Gunvante, Dr. Ashwinikumar Raut,
Dr. KSMS Raghavarao & Dr. Sanjog Surve

Dr. Ashwinikumar
Raut- Kasturba
Healthcare

Dr. Sanjog Surve- Director,
R&D: Abbott Nutrition

Dr. KSMS Raghavarao-
Director:CFTRI

Ms. Parina Garg-
Team Leader:
Beverages, DuPont

Mr. Prakash Chawla -
CEO: AAK Kamani

From L Dr. Jagmeet Madan - IDA: National President,
Ms. Priya Mundra - Application Specialist: DKSH,
Ms. Naaznin Husein - National Executive Committee Member - IDA,
Ms. Madhavi Trivedi - Sr. Asso. Dir. - Nutrition & Sctff. Affairs,
Kellogg Emerging Markets & Korea
& Mr. Prakash Chawla - CEO: AAK Kamani

Dr. Jagmeet Madan - IDA:
National President

Ms. Madhavi Trivedi - Sr. Asso. Dir. -
Nutrition & Sctff. Affairs, Kellogg
Emerging Markets & Korea

Ms. Naaznin Husein -
National Executive Committee
Member - IDA

Ms. Priya Mundra -
Application
Specialist,
DKSH

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REGULATORY ROUND UP

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

Image © iStock.com/Tashi-Delek

Dear Readers

Please find below notifications, orders and notices published by FSSAI since the last round up.

FSSAI has published draft regulation to ensure safe and healthy diet in school. It lists the responsibilities of School Authority which includes registration of the canteen facilities under Licensing and Registration Regulation, 2011 and also complies with Good Manufacturing Responsibilities mandated by the regulation. Food business operators, manufacturing High Fat, Sugar and Salt foods shall not advertise or sell within a distance of 50 meters from the school campus. This is easily implementable in case of hand carts around the school. This is going to be a huge challenge with well-established shops within 50 meters. The local administration must also get involved for effective implementation. The draft Labelling and Display regulation is referred to for identifying HFSS foods. However, Labelling and Display regulation is yet to be notified.

The regulation requires Food Business Operators encourage healthy eating and not market "Low Nutrition Foods". "Low Nutrition Foods" is not defined and hence will be open to interpretations, misinterpretations and harassment. Brands of "Low Nutrition Foods" are prohibited from promoting any event like sports, etc in the school.

Guidelines are issued for making health diet and also suggests calorie and other nutrient requirement of different meals provided by the school. The regulation also categorizes foods into "eat adequately" (cereals, milk, fruits, vegetables, etc), "Eat Moderately" (ice creams, dairy based desserts, biscuits, etc) and "Eat Sparingly" (sugar drinks, deep fried items like samosa, chips, confectionery, etc). "Eat Adequately" foods should be at least 75% of the available foods. "Eat Moderately" to be carefully selected and "Eat Sparingly" to be discouraged by the school. The School to provide safe drinking water free of cost to all the children.

The regulation requires that the school has a system in place to monitor the implementation of the regulation. The regulation does not discuss the role of parents and also the type of food that is brought from home. The regulation has to define many aspects and requirements for effective implementation. The big question is whether all the schools are equipped to implement the regulation. The better way could have been implementing it in step wise manner beginning with good hygiene practices, availability of adequate and safe water and toilet and wash room facilities. Otherwise, like many other initiatives, this may just remain on paper.

An order clarifying certain labelling requirements of Alcoholic Beverages.

RESEARCH IN HEALTH & NUTRITION

Green tea could hold the key to reducing antibiotic resistance

Scientists at the University of Surrey have discovered that a natural antioxidant commonly found in green tea may help eliminate antibiotic resistant bacteria.

September 20, 2019 IFT Weekly

Scientists at the University of Surrey have discovered that a natural antioxidant commonly found in green tea may help eliminate antibiotic resistant bacteria.

The study, published in the Journal of Medical Microbiology, found that epigallocatechin (EGCG) can restore the activity of aztreonam, an antibiotic commonly used to treat infections caused by the bacterial pathogen Pseudomonas aeruginosa.

Pseudomonas aeruginosa is associated with serious respiratory tract and bloodstream infections and in recent years has become resistant to many major classes of antibiotics. Currently, a combination of antibiotics is used to fight P. aeruginosa, however, these infections are becoming increasingly difficult to treat, as resistance to last line antibiotics is being observed.

To assess the synergy of EGCG and aztreonam, researchers conducted in vitro tests to analyze how they interacted with the P. aeruginosa, individually and in combination. The researchers found that the combination of aztreonam and EGCG was significantly more effective at reducing P. aeruginosa numbers than either agent alone.

This synergistic activity was also confirmed in vivo using Galleria mellonella (Greater Wax Moth larvae), with survival rates being significantly higher in those treated with the combination than those treated with EGCG or aztreonam alone. Furthermore, minimal to no toxicity was observed in human skin cells and in Galleria mellonella larvae.

Researchers believe that in P. aeruginosa, EGCG may facilitate increased uptake of aztreonam by increasing permeability in the bacteria. Another potential mechanism is EGCG's interference with a biochemical pathway linked to antibiotic susceptibility.

Omega-3 fish oil supplements linked with lower cardiovascular disease risk

Science Daily
September 30, 2019

People who received omega-3 fish oil supplements in randomized clinical trials had lower risks of heart attack and other cardiovascular disease (CVD) events compared with those who were given placebo, according to a new meta-analysis from Harvard T.H. Chan School of Public Health and Brigham and Women's Hospital.

Researchers found an association between daily omega-3 supplementation and reduced risk of most CVD outcomes, including heart attack, death from coronary heart disease, and death from CVD, but did not see benefit for stroke.

In addition, higher doses of omega-3 fish oil supplements appeared to provide even greater risk reduction.

The study will be published online September 30, 2019 in the Journal of the American Heart Association.

"This meta-analysis provides the most up-to-date evidence regarding the effects of omega-3 supplementation on risk of multiple CVD outcomes. We found significant protective effects of daily omega-3 supplementation against most CVD outcome risks and the associations appeared to be in a dose-response manner," said first author Yang Hu, a postdoctoral fellow in the Department of Nutrition at Harvard Chan School.

While observational studies have shown an association between fish consumption and lower heart disease risk, results from randomized controlled trials (RCTs) have been inconsistent. Two reviews published last year did not find clear evidence for benefit.

In this new analysis, the researchers did an updated meta-analysis that included three recently completed large-scale trials, which increased the sample size by 64%. The total population analyzed by Hu and colleagues included more than 120,000 adults in 13 randomized trials worldwide. The analysis included the VITAL trial, the largest randomized trial of omega-3s to date.

The findings showed that people who took daily omega-3 fish oil supplements, compared with those who took a placebo, lowered their risk for most CVD outcomes except stroke, including an 8% reduced risk for heart attack and coronary heart disease (CHD) death. The association was particularly evident at higher doses of omega-3 fish oil supplementation. This finding may suggest that marine omega-3 supplementation dosage above the 840 mg/day used in most randomized clinical trials may provide greater reductions in CVD risk. Given that several million people experience these CVD events worldwide each year, even small reductions in risk can translate into hundreds of thousands of heart attacks and CVD deaths avoided, according to the researchers.

"Although public health recommendations should focus on increasing fish consumption, having an overall heart-healthy diet, being physically active, and having other healthy lifestyle practices, this study suggests that omega-3 supplementation may have a role in appropriate patients," said senior author JoAnn Manson, chief of the Division of Preve.

Common nutrient supplementation may hold the answers to combating Alzheimer's disease

Science Daily September 27, 2019

In a new study, Biodesign researchers reveal that a lifelong dietary regimen of choline holds the potential to prevent Alzheimer's disease (AD).

Choline is a safe and easy-to-administer nutrient that is naturally present in some foods and can be used as a dietary supplement. Lead author Ramon Velazquez and his colleagues at the ASU-Banner Neurodegenerative Disease Research Center (NDRC) looked into whether this nutrient could alleviate the effects of Alzheimer's.

Earlier this year, Velazquez and colleagues found transgenerational benefits of AD-like symptoms in mice whose mothers were supplemented with choline. The latest work expands this line of research by exploring the effects of choline administered in adulthood rather than in fetal mice.

The study focuses on female mice bred to develop AD-like symptoms. Given the higher prevalence of AD in human females, the study sought to establish the findings in female mice. Results showed that when these mice are given high choline in their diet throughout life, they exhibit improvements in spatial memory, compared with those receiving a normal choline regimen.

Notably, findings published in July 2019 from a group in China found benefits of lifelong choline supplementation in male mice with AD-like symptoms. "Our results nicely replicate findings by this group in females," Velazquez says.

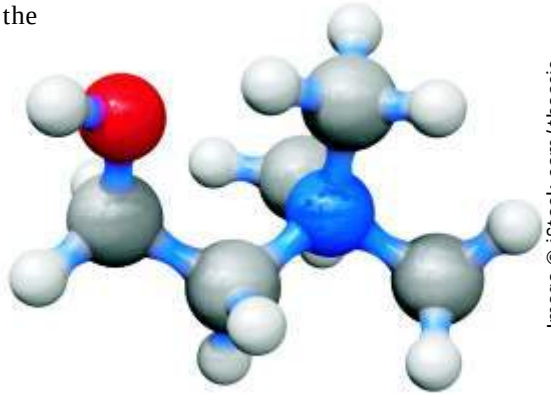

Image © iStock.com/theasis

Intriguingly, the beneficial effects of lifelong choline supplementation reduce the activation of microglia. Microglia are specialized cells that rid the brain of deleterious debris. Although they naturally occur to keep the brain healthy, if they are overactivated, brain inflammation and neuronal death, common symptoms of AD, will occur.

The observed reductions in disease-associated microglia, which are present in various neurodegenerative diseases, offer exciting new avenues of research and suggest ways of treating a broad range of disorders, including traumatic brain injuries, multiple sclerosis and Parkinson's disease.

The findings appear in the current issue of the journal Aging Cell.

Supplementing the brain with additional choline

Choline acts to protect the brain from Alzheimer's disease in at least two ways, both of which are explored in the new study. First, choline blocks the production of amyloid-beta plaques. Amyloid-beta plaques are the hallmark pathology observed in Alzheimer's disease.

Image © iStock.com/Ekaterina Senyutina

Secondly, choline supplementation reduces the activation of microglia. Over-activation of microglia causes brain inflammation and can eventually lead to neuronal death, thereby compromising cognitive function. Choline supplementation reduces the activation of microglia, offering further protection from the ravages of AD.

Mechanistically, the reductions in microglia activation are driven by alteration of two key receptors, the alpha7 nicotinic acetylcholine and Sigma-1 receptor. A new report this year found that choline can act as an agonist for Sigma-1 receptors. These results confirm that lifelong choline supplementation can alter the expression of the Sigma-1 receptor, which thereby attenuates microglia activation. (An agonist is a substance that activates a given receptor.)

The devastating decline

In the scientific community, it is well understood that Alzheimer's disease causes harm to the brain long before clinical symptoms are made evident. And once these symptoms are identified, it is too late -- the disease has become irreversible. In addition to causing disorientation and memory loss, the disease causes loss of motor control in those who are afflicted.

Approximately 6 million individuals are living with AD in the U.S. currently, and the disease is projected to afflict 14 million Americans in the next four decades. Economically, the costs associated with managing Alzheimer's are expected to exceed $20 trillion in the same time span.

To develop more effective treatments, we first need to understand the disease itself, which is one of the tallest orders facing modern medicine today.

Women are at a particular increased risk of developing Alzheimer's disease. This study shows that the simple addition of choline in the diet throughout life may reduce AD pathology in those most affected by the disease. Additionally, these results have implications for other neurodegenerative afflictions where activated microglia are rampant says Velazquez.

Guidelines for dietary choline

Prior research concerning Alzheimer's has indicated that there is no one factor at play. Rather, a multitude of factors that are believed to contribute to the development of the disease, including genetics, age and lifestyle. Additionally, studies suggest that diet can have a significant effect in increasing or lowering the risk of cognitive decline.

A recent report suggested that plant-based diets may be determinantal due to the lack of important nutrients, including choline. Another recent report found that the increase in cases of dementia in the United Kingdom may be associated with a lack of recommendations for choline in the diet throughout life. In fact, as of August 2019, AD and other forms of dementia are now the leading cause of death in England and Wales.

The current established adequate intake level of choline for adult women (>19yrs of age) is 425mg/day, and 550mg/day for adult men. A converging line of evidence indicates that even the current recommended daily intake (RDI) may not be optimal for a proper aging process, especially in women. This is relevant, given the higher incidence of AD seen in women. This suggests that additional choline in diet may be beneficial in preventing neuropathological changes associated with the aging brain.

The tolerable upper limit (TUL) of choline unlikely to cause side effects for adult females and males (>19yrs of age) is 3500mg/day, which is 8.24 times higher than the 425mg/day recommendation for females and 6.36 times higher than the 550mg/day recommendation for males. "Our choline supplemented diet regimen was only 4.5 times the RDI, which is well below the TUL and makes this a safe strategy," Velazquez says.

Choline can be found in various foods. According to the United States Department of Agriculture (USDA), high levels of choline are found in chicken liver (3oz; 247mg), eggs (1 large egg with yolk;147mg), beef grass-fed steak (3oz; 55mg), wheat germ (1oz toast; 51mg), milk (8oz; 38mg), and Brussels sprouts (1/2 cup; 32mg). Additionally, vitamin supplements containing choline, for example choline bitartrate and choline chloride, are widely available at affordable costs. The vitamin supplements containing choline are particularly relevant for those who are on plant-based diets.

Effects of choline

All plant and animal cells require choline to maintain their structural integrity. It has long been recognized that choline is particularly important for brain function.

The human body uses choline to produce acetylcholine, a neurotransmitter responsible for functioning memory, muscle control and mood. Choline also is used to build cell membranes and plays a vital role in regulating gene expression. Additionally, a new report in Jan 2019 found that choline acts as an agonist for Sigma-1 receptors, which are implicated in AD pathogenesis.

In this study, researchers used a water maze to determine whether the mice with AD-like symptoms that received lifelong supplemental choline exhibited improvements in spatial memory. It was found that this was indeed the case, and subsequent examination of mouse tissue extracted from the hippocampus, a brain region known to play a central role in memory formation, confirmed changes in toxic amyloid-beta and reductions in microglia activation, which reduces brain inflammation.

Due to alterations of key microglia receptors induced by choline, the improvements in behavior may be attributed to reduced microglia activation. "We found that lifelong choline supplementation altered the alpha7 nicotinic acetylcholine and Sigma-1 receptor, which may have resulted in the reduction of diseased associated activated microglia," Velazquez said. These receptors regulate CNS immune response and their dysregulation contributes to AD pathogenesis.

The study's significance establishes beneficial effects of nutrient supplementation in females throughout life. "Our work nicely complements recent work showing benefits in male AD-mice on a lifelong choline supplementation regimen." "No one has shown lifelong benefits of choline supplementation in female AD-mice." "That's what is novel about our work."
Choline is an attractive candidate for prevention of AD as it is considered a very safe alternative, compared with many pharmaceuticals. "At 4.5 times the RDI (recommended daily intake), we are well under the tolerable upper limit, making this a safe preventive therapeutic strategy." Although the results improve the understanding of the disease, the authors suggest that clinical trials will be necessary to confirm whether choline can be used as a viable treatment in the future.

A healthy diet may help prevent kidney disease

Science Daily September 24, 2019

Maintaining a healthy diet may help prevent kidney disease, according to an analysis of published studies. The findings appear in an upcoming issue of CJASN.

Making dietary changes can help slow the progression of chronic kidney disease (CKD), but it's not clear whether a healthy diet is protective against the development of the disease. To investigate, Jaimon Kelly, PhD, Katrina Bach (Bond University, Australia), and their colleagues analyzed all relevant studies published through February 2019.

The analysis included 18 studies with a total of 630,108 adults who were followed for an average of 10.4 years. Healthy dietary patterns typically encouraged higher intakes of vegetables, fruit, legumes, nuts, whole grains, fish, and low-fat dairy, and lower intakes of red and processed meats, sodium, and sugar-sweetened beverages.

A healthy dietary pattern was associated with a 30% lower incidence of CKD. It was also linked with a 23% lower incidence of albuminuria, an early indicator of kidney damage.

"These results add to the accumulating evidence base supporting the potential benefit of adhering to a healthy dietary pattern -- such as the Mediterranean, DASH diet, or National Dietary Guidelines -- and the primary prevention of chronic conditions, including type 2 diabetes, cardiovascular disease, cognitive decline, cancer, and all-cause mortality," said Dr. Kelly. "These results may assist in developing public health prevention programs for CKD, which may assist in reducing the burden of the disease." Dr. Kelly noted that dietary approaches to kidney health


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that target individual (or multiple) nutrients can be difficult, but focusing on whole foods rather than nutrients can make it easier for clinicians to educate patients and easier for patients to carry out.

"Randomized clinical trials with sufficient follow-up time to ascertain meaningful kidney outcomes are necessary to determine whether a change in dietary patterns is causally related to favorable kidney health outcomes," wrote the authors of an accompanying editorial. "Meanwhile, there may be sufficient observational evidence for clinicians to emphasize the importance of healthy dietary patterns to individuals who are healthy or who are at risk of developing CKD."

An accompanying Patient Voice editorial notes the importance of including children in future studies.

Vitamin D and fish oil show promise in prevention of cancer death and heart attacks

Science Daily September 24, 2019


Image © iStock.com/ Andrey Elkin

The VITamin D and OmegA-3 Trial (VITAL) is the largest and most recent to test whether vitamin D or fish oil can effectively prevent cancer or cardiovascular disease.

Results to date have been mixed but show promise for some outcomes, now confirmed by updated pooled (meta) analyses.

The latest results from VITAL will be presented during The North American Menopause Society (NAMS) Annual Meeting in Chicago, September 25-28, 2019.

Nearly 26,000 U.S. men and women participated in the nationwide VITAL clinical trial. After more than five years of study and treatment, the results show promising signals for certain outcomes. For example, while Omega-3 fatty acids (fish oil) showed only a small, but nonsignificant, reduction in the primary cardiovascular endpoint of major CVD events, they were associated with significant reductions in heart attacks. The greatest treatment benefit was seen in people with dietary fish intake below the cohort median of 1.5 servings per week but not in those whose intake was above that level. In addition, African-Americans appeared to experience the greatest risk reductions. The heart health benefits are now confirmed by recent meta-analyses of omega-3 randomized trials.

Similarly, vitamin D supplementation did not reduce major CVD events or total cancer incidence but was associated with a statistically significant reduction in total cancer mortality among those in the trial at least two years. The effect of vitamin D in reducing cancer death is also confirmed by updated meta-analyses of vitamin D trials to date.

"The pattern of findings suggests a complex balance of benefits and risks for each intervention and points to the need for additional research to determine which individuals may be most likely to derive a net benefit from these supplements," says Dr. JoAnn Manson, lead author of the study from Brigham and Women's Hospital, an affiliate of Harvard Medical School.

"With heart disease and cancer representing the most significant health threats to women, it is imperative that we continue to study the viability of options that prevent these diseases and help women survive them," says Dr. Stephanie Faubion, NAMS medical director.

Short-term study suggests vegan diet can boost gut microbes related to body weight, body composition and blood sugar control

Science Daily September 16, 2019

New research presented at this year's Annual Meeting of the European Association for the Study of Diabetes (EASD) in Barcelona, Spain (16-20 Sept) suggests that a 16-week vegan diet can boost the gut microbes that are related to improvements in body weight, body composition and blood sugar control.

The study is by Dr Hana Kahleova, Physicians Committee for Responsible Medicine (PCRM), Washington, DC, USA, and colleagues.

Gut microbiota play an important role in weight regulation, the development of metabolic syndrome, and type 2 diabetes. The aim of this study was to test the effect of a 16-week plant-based diet on gut microbiota composition, body weight, body composition, and insulin resistance in overweight adults with no history of diabetes.

The study included 147 participants (86% women and 14% men; mean age was 55.6±11.3 years), who were randomised to follow a low-fat vegan diet (n=73) or to make no changes to their diet (n=74) for 16 weeks. At baseline and 16 weeks, gut microbiota composition was assessed, using uBiome kits. Dual energy X-ray absorptiometry was used to measure body composition. A standard method called the PREDIM index was used to assess insulin sensitivity.

Following the 16-week study, body weight was reduced significantly in the vegan group (treatment effect average -5.8 kg), particularly due to a reduction in fat mass (average -3.9 kg) and in visceral fat. Insulin

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sensitivity also increased significantly in the vegan group.

The relative abundance of Faecalibacteriumprausnitzii increased in the vegan group (treatment effect +4.8%). Relative changes in Faecalibacterium-prausnitzii were associated with decreases in body weight, fat mass and visceral fat.

The relative abundance of Bacteoidesfragilis also increased in the vegan group (treatment effect +19.5%). Relative changes in Bacteroidesfragilis were associated with decreases in body weight, fat mass and visceral fat, and increases in insulin sensitivity.

The authors conclude: "A 16-week low-fat vegan dietary intervention induced changes in gut microbiota that were related to changes in weight, body composition and insulin sensitivity in overweight adults." However, the authors acknowledge that further work is needed to separate out the effects of the vegan diet itself from that of the reduced calories.

They say: "A plant-based diet has been shown to be effective in weight management, and in diabetes prevention and treatment. This study has explored the link between changes in the gut microbiome, and changes in body weight, body composition, and insulin sensitivity. We have demonstrated that a plant-based diet elicited changes in gut microbiome that were associated with weight loss, reduction in fat mass and visceral fat volume, and increase in insulin sensitivity."

They add: "The main shift in the gut microbiome composition was due to an increased relative content of short-chain fatty acid producing bacteria that feed on fibre. Therefore, high dietary fibre content seems to be essential for the changes observed in our study. We plan to compare the effects of a vegan and a standard portion-controlled diet on gut microbiome in people with type 2 diabetes, in order to separate out the positive effects of the reduced calories in the diet from those caused by the vegan composition of the diet."

They continue: "This is a fascinating area of research and we have been collecting data from more study participants. We hope we will be able to present them at the next year's 2020 EASD meeting."

The authors say that fibre is the most important component of plant foods that promotes a healthy gut microbiome.

Faecalibacteriumprausnitzii is one of the short-chain fatty acids producing bacteria, which degrade plant complex sugars and starch to produce health-promoting butyrate and/or other short-chain fatty acids that have been found to have a beneficial effect on body weight, body composition, and insulin sensitivity. The authors say: "Eating more fibre is the number one dietary recommendation for a healthy gut microbiome."

Professors examine what influences healthy, sustainable food choices

Science Daily September 11, 2019


Image © iStock.com/Dreamer Company

"We eat first with our eyes." This comment has been attributed to Marcus GaviusApicius, a 1st Century Roman gourmand. Two thousand years later, academic research backs up Apicius' statement, as a team of marketing professors at the Fowler College of Business at San Diego State University (SDSU) have studied the sensory impact of food and the evolution of healthy eating.

SDSU associate professor, Dr. Morgan Poor, who has studied the impact of food on the senses knows firsthand how just an image of food can have a sensory and emotional effect on individuals. "Seeing a photo of a hamburger, for example, can stimulate other sensory images, causing individuals to imagine the taste or smell of that hamburger," she noted.

World Wide Health Crisis
Unfortunately, the pleasing aesthetics and easy access to unhealthy foods (such as hamburgers), along with limited access to healthy foods, may be leading to a worldwide health crisis. In fact, statistics released by the World Health Organization (WHO) show that 39 percent of all adults in the world are overweight and 13 percent are obese meaning they have a body mass index (BMI) of 30 or more. The organization also noted that global obesity rates have nearly tripled since 1975.

Making Healthy Food Attractive is Key

One solution to obesity may involve focusing on the pleasure of eating which could be used a tool to promote healthy food choices. Research conducted by SDSU marketing professors Dr. Paula Peter, Dr. Iana Castro, and Dr. Sunaina Chugani, and recently published in the Journal of Business Research (print edition available July 2019), determined that associating healthy food with pleasurable experiences and emotions led to greater interest in purchasing or eating it.

The researchers cited a successful marketing campaign by Bolthouse Farms to reverse the sales decline of their brand of baby carrots. The campaign did not emphasize the carrots' healthy qualities, but embraced the sensory pleasure derived from eating them. For example, the neon orange color, crispy texture and crinkly sound of the packaging mimicked some of the characteristics of certain "junk foods" and led to an increase in product sales of 10 to 12 percent.

Breaking down Barriers to Healthy Foods

In the same research, the professors also noted that the two primary barriers to building pleasurable experiences around healthy foods are time and money. Time is needed to seek out the necessary ingredients to assemble a healthy meal or find a restaurant that serves good tasting, healthy food, where money is needed to purchase the restaurant meals or the ingredients (as well as the knives, pans and other tools) to create the end product. Based on numerous studies, the professors concluded that money, more so than distance to the food or lack of time, is the primary barrier to healthy food access.

Castro has done extensive research on access to healthy foods (including fresh produce) for people living in lower income and ethnically-diverse neighborhoods. Residents of underserved communities do not always have access to supermarkets and may rely on smaller food stores, liquor stores or corner stores to meet their food needs. These smaller stores are limited in the amount of healthy foods they can offer. However, distributors require minimum order quantities to cover their delivery costs and, in many cases, these minimum order requirements exceed store needs.

In an article that was co-authored by Castro that is forthcoming in Translational Behavioral Medicine*, researchers studied whether stores that accept food assistance payments are able to meet the minimum stocking requirements set by United States Department of Agriculture. While the stocking requirements are meant to increase the amount of healthy food items available in smaller stores, the research suggests that stores are struggling to meet the requirements.

Taking Action

Castro decided she wanted to do more than just study food access challenges in underserved communities -- she wanted to find a way to give community residents access to fresh produce while providing SDSU students a learning experience that increased their involvement in tackling pressing issues that impacted the local community.

Castro co-founded BrightSide Produce, a produce distribution service operated by SDSU students, to address the challenges faced by small stores in underserved communities. BrightSide Produce initially launched in June 2017 with five stores in National City, California, but word spread that the produce was popular with customers and profitable for the store owners. As of September 2019, BrightSide Produce was delivering fresh produce to 13 stores in National City, with plans to expand into the City of San Diego by the end of the year.


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Respect for the Insect

What's next for academics, cooks and scientists wanting to find healthy, low-fat food sources that are also easily sustainable? Professor Peter is finding evidence to suggest a new food source may be coming to American menus soon: Bugs.

While eating bugs (entomophagy) may be trending in epicurean circles, they would certainly lack eye appeal to most people and would seem to fly in the face of some of Peter's earlier research emphasizing the aesthetic attributes of healthy foods. However, given the popularity of edible bugs in other cultures, beauty may be in the eye of the beholder.

"Insects such as ants, grasshoppers, crickets and various kinds of larvae have been used as a low-fat source of protein in many parts of the world (especially in Asia), but have found little traction in the Western Hemisphere, especially the U.S.," said Peter. "While many people in Western culture find the practice of eating insects to be repugnant, they are actually high in protein and iron, as well as an inexpensive and sustainable food source."

Will American chefs and lovers of healthy foods be able to make bugs look good enough to eat? Stay tuned -- Professor Peter is researching that now.

Why people gain weight as they get older

Science Daily
September 9, 2019

Many people struggle to keep their weight in check as they get older.

Now new research at KarolinskaInstitutet in Sweden has uncovered why that is: Lipid turnover in the fat tissue decreases during ageing and makes it easier to gain weight, even if we don't eat more or exercise less than before. The study is published in the journal Nature Medicine.

The scientists studied the fat cells in 54 men and women over an average period of 13 years. In that time, all subjects, regardless of whether they gained or lost weight, showed decreases in lipid turnover in the fat tissue, that is the rate at which lipid (or fat) in the fat cells is removed and stored. Those who didn't compensate for that by eating less calories gained weight by an average of 20 percent, according to the study which was done in collaboration with researchers at Uppsala University in Sweden and University of Lyon in France.

The researchers also examined lipid turnover in 41 women who underwent bariatric surgery and how the lipid turnover rate affected their ability to keep the weight off four to seven years after surgery. The result showed that only those who had a low rate before the surgery managed to increase their lipid turnover and maintain their weight loss. The researchers believe these people may have had more room to increase their lipid turnover than those who already had a high-level pre-surgery.

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"The results indicate for the first time that processes in our fat tissue regulate changes in body weight during ageing in a way that is independent of other factors," says Peter Arner, professor at the Department of Medicine in Huddinge at KarolinskaInstitutet and one of the study's main authors. "This could open up new ways to treat obesity."

Prior studies have shown that one way to speed up the lipid turnover in the fat tissue is to exercise more. This new research supports that notion and further indicates that the long-term result of weight-loss surgery would improve if combined with increased physical activity.

"Obesity and obesity-related diseases have become a global problem," says Kirsty Spalding, senior researcher at the Department of Cell and Molecular Biology at KarolinskaInstitutet and another of the study's main authors. "Understanding lipid dynamics and what regulates the size of the fat mass in humans has never been more relevant."

The study was financed by grants from the Stockholm County Council, the Swedish Research Council, the Strategic Research Program for Diabetes at KarolinskaInstitutet, the Novo Nordisk Foundation, the Swedish Diabetes Foundation, KarolinskaInstitutet-Astra Zeneca Integrated CardiometabolicCenter, the Vallee Foundation, the Swedish Society of Medicine, the Erling-Persson Family foundation and IXXI.

Offering children a variety of vegetables increases acceptance

Science Daily September 9, 2019

Although food preferences are largely learned, dislike is the main reason parents stop offering or serving their children foods like vegetables.

A new study in the Journal of Nutrition Education and Behavior, published by Elsevier, demonstrated that repeatedly offering a variety of vegetables increased acceptance and consumption by children.

"In Australia, dietary guidelines for vegetable consumption by young children have increased although actual consumption is low," said lead author Astrid A.M. Poelman, PhD, CSIRO Agriculture & Food, Sensory, Flavour and Consumer Science, North Ryde, Australia. "This study introduces an effective strategy for parents wanting to address this deficiency."

This study recruited 32 families with children between the ages of four and six where low consumption of vegetables was reported. Parents completed an online survey and attended an information meeting prior to participating. Three groups were created: children introduced to a single vegetable; children to receive multiple vegetables; and a group where eating habits were not changed.

Study data were collected in several ways: two dinner meals served at the research facility during which children could eat as much of the broccoli, cauliflower and green beans as they wished; changes to actual vegetables consumed at home, childcare or school recorded through food diaries; and parents reporting on usual vegetable consumption.

Strategies of offering vegetables were parent led and home based. Families introducing one vegetable served broccoli and families trying multiple vegetables served broccoli, zucchini and peas. Parents were provided with a voucher to purchase the vegetables and given instructions on portion size and cooking instructions along with tips on how to offer the vegetables. Children were served a small piece of vegetable three times a week for five weeks. A sticker was given as a reward to children trying a vegetable.

There was no difference between groups at the start of the study for any of the methods measured. The dinner meal, during which the children ate without parents present, did not increase consumption perhaps due to an unfamiliar setting. Vegetable acceptance increased for both the single and multiple vegetable groups during the intervention. Families that offered multiple vegetables recorded an increase in consumption from .6 to 1.2 servings, while no change in consumption was observed in families serving a single vegetable or families that did not change their eating habits. Increased acceptance for multiple vegetables was noted during the five weeks of the study and sustained at three-month followup. Following the study parents reported that offering the vegetables was "very easy" or "quite easy" with the majority following the instructions provided by the study.

Dr. Poelman recommended, "While the amount of vegetables eaten increased during the study, the amount did not meet dietary guidelines. Nonetheless, the study showed the strategy of offering a variety of vegetables was more successful in increasing consumption than offering a single vegetable."


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Fish micronutrients can alleviate tropical coast residents' malnutrition, research suggests

27 Sep 2019 Nutrition Insight

Fish micronutrients are "slipping through the hands" of many vulnerable, malnourished groups.

According to a recent Lancaster University study, fish-based food strategies have the potential to substantially contribute to ensuring nutrition security and human nutrition should be at the core of fishing policy. Published in Nature, it reveals that millions of people living in tropical coastal areas suffering from malnutrition could see significant health improvements if just a fraction of the fish caught nearby was diverted into their diets.

"Fish contains high concentrations of bio-available micronutrients, such as zinc and iron. It can be particularly hard to ensure children between the ages of six months and four years gain sufficient quantities of these nutrients. Deficiencies in these nutrients in the early years can have long term impacts on physical and cognitive development, ultimately reducing a country's GDP and contributing to early death," Christina Hicks, Professor at Lancaster University's Environment Center and lead author of the study, tells NutritionInsight.

The research team collected data on the concentration of seven nutrients in more than 350 species of marine fish and developed a statistical model for predicting how much nutrition any given species of fish contains, based on their diet, seawater temperature and energy expenditure.

They found that species from tropical thermal regimes contain higher concentrations of calcium, iron and zinc; smaller species contain higher concentrations of calcium, iron and omega 3 fatty acids; and species from cold thermal regimes or those with a pelagic feeding pathway contain higher concentrations of omega 3 fatty acids.

As a rich source of vitamins, minerals and fatty acids, fish is often missing in the diets of poor populations throughout the world, despite their proximity to many tropical areas, where fish are abundant. This is due to a host of challenges, such as international fishing and market demands, as well as cultural practices and norms.

International fishing fleets and trade in seafood are major contributors to fish not being retained. "International fishing fleets and trade in seafood are major contributors to fish not being retained and eaten locally in a number of countries. However, diet preferences that do not include fish, or norms regarding who in the household eats what part of the fish, can all also serve as barriers to fish reaching those most in need," Hicks says.

Climate justice

In light of the UN climate summit that was held this week in New York, US, Hicks indicates that eating fish is part of the recommendations to move toward lower carbon diets and has a much smaller carbon footprint than eating many terrestrial animals, especially red meat. However, fish from waters in countries where micronutrient deficiencies are prevalent are being eaten or used as fish food in richer nations.

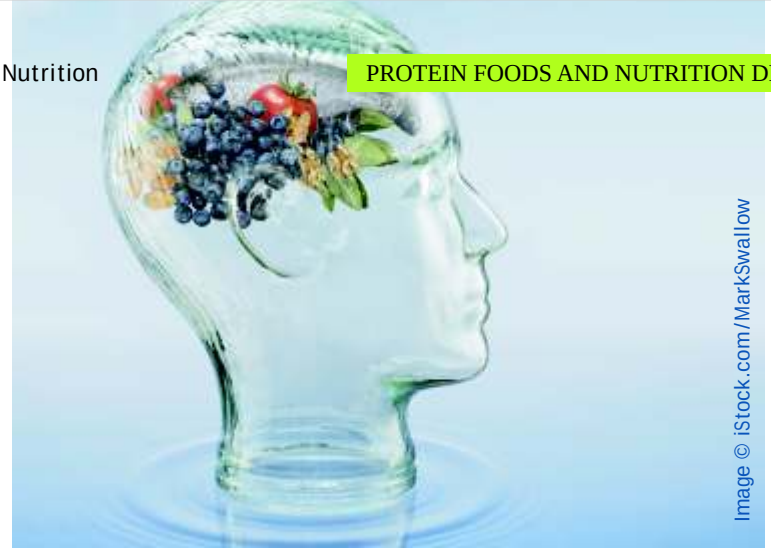
"We are proposing that a greater proportion of the catch should be retained locally to where it is caught in these countries. This is particularly important in the face of climate change, where declines in fish catches are projected to be largest in the tropics," Hicks concludes.

The research also revealed that currently, many global fisheries prioritize revenue growth and have neglected human nutrition at the core of fishing policies. "It's time that food security policymakers acknowledge the nutrient-rich food swimming right under their noses and think about what can be done to increase access to fish by those populations," Dr. Andrew Thone-Lyman, Co-Author from John Hopkins Bloomberg School of Public Health and Nutritionist emphasizes.

This study is not the first to highlight the nutritional benefits of an increased fish intake. Recently, a joint study from Queen Mary University and the University of Warwick found that a Mediterranean-style diet, promoting olive oil, fresh fruits and vegetables, and a moderate to high fish intake, can lead to health benefits during pregnancy.

Another analysis published by Elsevier showed that the low consumption of fish and shellfish among US adults was due to a lack of awareness of its health benefits. The scientific evidence also suggested that the benefits of fish intake exceed the potential risks for most individuals, such as mercury contamination.

By AnniSchleicher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Boosting the brain: Polyphenols, gut-brain axis and MCT oil spotlighted for cognition

Focus, concentration, clarity and healthy mind are characteristics sought across generations

25 Sep 2019 Nutrition Insight

The brain health arena is expanding, bolstered by a widening demographic of consumers seeking to preserve healthy brain function, as well as emerging research into brain-boosting nutrients.

Experts speak with NutritionInsight on the ingredients coming to the fore in current and future NPD, which range from plant-based polyphenols and MCT oil, to tapping into the gut-brain axis.

The notion of holistic health plays a significant role within the brain-health spectrum. "We see companies address a broader spectrum of issues related to brain health with a more holistic approach. Benefits that are important to consumers have moved beyond memory support and new products help consumers with performance benefits like focus and concentration, which are perceived as critical needs," says David Tetzlaf, Senior Marketing Manager, Evolva.

Indeed, new research from Innova Market Insights highlights how holistic health holds cross-generational appeal. According to data from the market researcher, holistic wellbeing, meaning physical and mental health are now equally important to consumers. This is stimulating product activity, with a 36 percent growth reported in food and beverages with a "feel good" claim (Global, 2017 vs. 2016).

A healthy brain is one that has the ability to remember, concentrate and maintain a clear and active mind. Increasingly, it's not just the senior population who are concerned with optimizing such functions, but also younger consumers - especially within professional and athletic groups.

"Consumers are well aware that memory declines as we age and that exercise, combined with a healthy diet, can help improve daily living and support mental health. However, busy consumers often look to supplements for additional support throughout their life to improve memory retention, focus, attention, task performance and overall longevity," says Tetzlaf.

The space has global appeal. Royal DSM is to collaborate with SLS Nutraceuticals to deliver solutions that help maintain the cognitive performance of individuals well into advanced age in the Asia-Pacific (APAC) region. The products have been formulated with the aim of bringing together western neuroscience with eastern traditional medicine. The products provide consumers with a sustained approach towards optimizing adult brain performance and supporting healthy brain aging.

Permeating pill-fatigue

This brain space is also no stranger to the pill-fatigue phenomenon, where consumers are moving towards delivery forms that are more accessible, or more novel than typical pill formats. "The overall trend in the supplement industry to replace capsules with enjoyable delivery forms is also impacting the brain health arena. More nootropic beverages and functional shots are appearing on the marketplace. This requires water-solubility and good taste properties by ingredients which is lacking from the plant extracts currently used in brain health supplements," says Dr. TorstenGrothe, Portfolio Manager Food & Health, Mibelle Group Biochemistry.

Grothe highlights MCT oil as a water-soluble ingredient that can add a dash of brain-boosting property to a beverage or shot. MCT oil – medium-chain triglycerides typically derived from coconut – is known to boost brain power. "Medium chain triglycerides are metabolized to ketone bodies that serve as an alternative source of energy for neurons, which may improve cognitive and memory function. However, the brain health benefits of pure MCT oil has only been reported at relatively high dosages of more than 20g," he says.

Mibelle Biochemistry offers a Timut pepper MCT oil extract – SaraPEPP Nu – suitable for applications such as softgel applications, functional beverages, smoothies and dairy products. Using an extraction process with MCT oil as the extraction solvent, a high content of the main lead substance – alkamidehydroxy-α-sanshool – is ensured. Additionally, MCT oil is touted as delivering good bioavailability to SaraPEPP Nu because it passively diffuses from the gastrointestinal tract to the bloodstream.

The acute and chronic effects of SaraPEPP Nu on cognitive performance have been demonstrated in a randomized, double blind, and placebo-controlled study in a healthy working population of both genders, explains Grothe.

Consumers have also signaled their acceptances of MCT oil as an ingredient, particularly within the proliferating keto trend. Innova Market Insights data reflects a rise in NPD launches featuring "keto" claims and it has been predicted that this will continue as consumer interest in the diet grows. It's also increasingly appearing on the market. In June, Remedy Organics, a US producer of functional drinks, launched a cognitive-health focused beverage which included MCT oil as a key ingredient, as well as turmeric, ginger, maca and prebiotics.

Specific nutrients stand-out

Ingredients for brain-health space also span into the nutrient category and omega 3 fatty acids, B vitamins and polyphenolic plant extracts are often featured. Innova Market Insights analysis shows that botanical ingredients are increasingly featuring in NPD. In brain health launches, the use of ginkgo biloba jumped by 21 percent from 2014 to 2018, while hemp increased by 16 percent. "We find that when consumers are able to link specific ingredients found in nature to support their memory, there is a higher level of comfort with taking a dietary supplement to support their diet. Therefore, R&D is often looking for ingredients which can be found in nature, with data to back up health claims," says Tetzlaf. Recent research has brought resveratrol, a polyphenol compound found in grape seeds and red wine, to the fore. Ingredients that support a healthy gut microbiome due to the theory of the gut-brain axis are increasing in popularity. Resveratrol was brought into the spotlight in the mid-1990s in the context of the French paradox diet and the population's general consumption of wine that contains resveratrol. Since then, numerous trials and publications have supported its use in nutritional supplements to sustain healthy aging - including brain health. Harvard researchers even proposed supplementing astronauts with resveratrol as a means of preserving muscle mass and strength.

Another area of exponential growth, Tetzlaf says, are ingredients that support a healthy gut microbiome due to the theory of the gut-brain axis. A recent Northumbria University study combined these two areas, and investigated how resveratrol impacts the gut-brain axis, and its potential improvement on cognition. The study used Evolva's Veri-te resveratrol. "Applying genomics technology and next generation sequencing, resveratrol was discovered to reorganize the bacteria population in the human intestine. This latest research finding indicates that resveratrol can trigger the growth of healthy strains and inhibit the growth of bad strains," Tetzlaf adds. "With an optimized bacterial population, also known as healthy gut microbiota, key modulators have been identified from resveratrol which are known to have beneficial effects on brain health via the gut/brain axis. Such research insights represent the forefront of biomedical research, which will further help understand the importance of having the appropriate nutrition at the molecular level and resveratrol can be key to a healthy microbiome."

What's next?

Brain health will continue to be on the top of consumers minds. Innova Market Insights shows that brain health claims are increasingly applied, showing 13 percent average annual growth from 2014 to 2018. The number of natural ingredients that can boost brain health is also clearly growing and will be the focus of further research. Another prominent group in this space are the nootropics or adaptogens. As consumer awareness of these grow, and the industry innovates around more natural options in this group, NPD is expected to increase.
By LaxmiHaigh

'Top-tier evidence': Major

Image © iStock.com/FilippoBacci

Australian meta-review backs EPA for improving mental health

By TingminKoe
16-Sep-2019 NutraIngredients Asia

Polyunsaturated fatty acids (PUFAs), and in particular eicosapentaenoic acid (EPA), has shown the strongest evidence for improving cognitive disorders, such as depression, according to a meta-review.

The meta-review, led by researchers from Sydney's NICM Health Research Institute at Western Sydney University, was published in World Psychiatry. They evaluated existing studies that studied the relationship between nutrient intake and mental health improvement. Examining 33 meta-analyses of placebo-controlled RCTs, the researchers said they studied "top tier evidence" involving a total of 10,951 subjects. These subjects were at risk or are suffering from common and severe mental disorders.

Through the review, they said that PUFAs, in particular, EPA, displayed the strongest evidence as a useful adjunctive treatment for depression. The majority of other nutritional supplements, such as vitamins, however, did not show ample evidence for improving mental health, they claimed. For PUFAs, early findings also suggested that it could be beneficial for attention-deficit or hyperactivity disorder. No evidence was found for schizophrenia. On the other hand, there were emerging evidence for N-acetylcysteine as a useful adjunctive treatment in mood disorders and schizophrenia.

Here are their findings on the impact of different nutrients on mental health:

1. PUFA

The meta-review showed that omega-3 as an adjunctive treatment alongside antidepressants "appeared to be of the greatest benefit" when it had high-EPA content. As a monotherapy intervention, the data becomes less compelling, and DHA or DHA-predominant formulas do not appear to show any obvious benefit in major depressive disorders (MDDs).Data from the RCTs further indicated that omega3 might be most beneficial for patients with raised inflammatory markers. The researchers said that more research is needed concerning the efficacy of omega3 supplements in other mental health conditions. An example is to further study the benefits of high EPA formula omega3 for children with ADHD, which at present, has already showed some emerging evidence.

2. Folate

Using folate-based supplements as an adjunctive treatment was found to significantly reduce symptoms of MDD and negative symptoms in schizophrenia. However, based on the Assessing the Methodological Quality of Systematic Reviews (AMSTAR-2) ratings, there was low confidence in the review findings. Also, the positive overall effects of folate-based supplements were driven largely by RCTs of high dose (15mg/day) methylfolate. Methylfolate, the active form of folate, is readily absorbed, and could cross over the blood-brain barrier. Researchers said that further research on methylfolate as an adjunctive treatment for mental disorders was required.

3. Vitamins

There is a lack of compelling evidence which shows the efficacy of vitamins and minerals, such as zinc andmagnesium in improving any mental disorder. The researchers have however noted that there was emerging evidence on the positive effects that vitamin D has for major depression.

4. Amino acid N-acetylcysteine

Findings show that N-acetylcysteine, as an adjunctive treatment at doses of 2,000mg per day or higher was potentially effective for reducing depressive symptoms. N-acetylcysteine is the nutraceutical form of amino acid cysteine and is found in abundance in high protein foods. Researchers said that significant reductions in total symptoms of schizophrenia have been observed when using N-acetylcysteine as an adjunctive treatment. However, there was substantial heterogeneity between studies, especially in study length. Notably, N-acetylcysteine also has a delayed onset of action of about 6 months.

5. Pre and probiotics

From a recent meta-analysis that evaluated the pooled effect of probiotic interventions on depressive symptoms, it was found that probiotics may be beneficial for those with a clinical diagnosis of depression rather than subclinical symptoms. In groups of individuals with mild to moderate depression as determined by thresholds on clinically validated scales, probiotic treatments of varying strains and doses also reduced depressive symptoms. The researchers said that additional trials were required to replicate the results and also to evaluate the long term safety of probiotic interventions. Research into the optimal dosing regimen and the most effective prebiotic and probiotic strains are alsor equired.

A word of caution

Researchers cautioned that nutrient supplements should not be intended to replace dietary improvement. At present, there are a number of scientific research which shows the link between dietary intake and mental health. For instance, data from large scale studies showed that psychotic and mood disorders are associated with reduced serum levels of essential nutrients, such as zinc, folate, and vitamins. For example, vitamin E occurs naturally in eight forms, but nutrient supplements may only provide one form. The researchers added that more well-designed studies are needed to confirm the mental health benefits of dietary interventions for people with diagnosed psychiatric conditions.


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Regular tea consumption helps promote a "better organized" brain, claims study

13 Sep 2019 Nutrition Insight

A recent study led by researchers from the National University of Singapore (NUS) suggests that regular tea drinkers have "better organized" brain regions – associated with healthy cognitive function – compared to non-tea drinkers.

The research team made this discovery after examining neuroimaging data of 36 adults aged 60 and above, which revealed that those who consume tea at least four times a week have "better brain efficiency."

"It is possible that certain varieties of tea are more efficacious [in promoting 'organized' brain regions], but we do not have sufficient number of subjects to test this hypothesis," team leader Assistant Professor Feng Lei, from the Department of Psychological Medicine at the NUS Yong Loo Lin School of Medicine, tells NutritionInsight.

The study's results offer the first evidence of positive contribution of tea drinking to brain structure and suggest that drinking tea regularly has a protective effect against age-related decline in brain organization, says Feng.

"This study focused on how efficiently the brain is organized as a complex network, and we are not using any brain disease as the study outcome," he explains. "However, based on my earlier research, regular tea consumption may help to prevent cognitive decline and dementia. Using data from both Singapore and China, we also showed that tea consumption is related to less depression." The research was carried out together with collaborators from the University of Essex and University of Cambridge, and the findings were published in scientific journal Aging. Regular tea consumers have brain regions that are "interconnected in a more efficient way."

Benefits of regular tea intake

Past studies have demonstrated that tea intake is beneficial to human health, and the positive effects include mood improvement and mental decline prevention. The results of a longitudinal study led by Feng and published in 2017 reveal that daily consumption of tea can reduce the risk of cognitive decline in older persons by 50 percent. Furthering their research in tea, the NUS scientists recorded data assessing the participants' health, lifestyle and psychological well-being. The elderly participants also underwent neuropsychological tests and magnetic resonance imaging (MRI). The study was carried out from 2015 to 2018. Upon analysing the participants' cognitive performance and imaging results, the research team found that individuals who consumed either green tea, oolong tea or black tea at least four times a week for about 25 years had brain regions that were "interconnected in a more efficient way."

"Take the analogy of road traffic as an example – consider brain regions as destinations, while the connections between brain regions are roads. When a road system is better organizsed, the movement of vehicles and passengers is more efficient and uses less resources. Similarly, when the connections between brain regions are more structured, information processing can be performed more efficiently," explains Assistant Professor Feng. "Our current results relating to brain network indirectly support our previous findings by showing that the positive effects of regular tea drinking are the result of improved brain organization brought about by preventing disruption to interregional connections," he adds.

Functional teas

As cognitive performance and brain organization are intricately related, the NUS researchers note that more research is needed to better understand how functions like memory emerge from brain circuits, and the possible interventions to better preserve cognition during the ageing process. Still, consumer interest in the benefits of tea continues to inspire NPD in the space of functional teas and tea extracts.

Last month, Canadian brand Wize Monkey created a tea product made from upcycled prunings of the arabica coffee plant, which offers high levels of antioxidants, vitamins, minerals and phenolic compounds. Based on compiled research, compounds in the coffee leaves were found to be beneficial in helping prevent cerebrovascular disease, promote anti-inflammatory activity, manage blood sugar levels and aid weight loss. Similarly in May, Avocado Leaf Tea made its debut, marketed as offering a high concentration of polyphenols and flavonoids, delivering a drink that is high in antioxidants. The leaves are marketed as providing a "rich source of bioactive compounds," in addition to functional nutrients such as minerals, vitamins, fatty acids, proteins, fibers and polyphenols.

Capsulized tea compounds present a convenient mode of consumption for time-starved consumers. However, when taken as food supplements, green tea catechin – a type of phenolic compound found in tea, with high antioxidant activity – consumed at or above 800mg/day, was found to pose health concerns, according to a study by European Food Safety Authority (EFSA). The assessment follows Nordic reports of cases of liver damage, possibly associated with the use of green tea products.

When asked if regularly consuming antioxidant supplements present the same effects as regularly drinking tea, Assistant Professor Feng responds, "We need clinical trial data to prove or reject any claim on the efficacy of a certain type of supplement. We would need well designed trials for this purpose."
By Benjamin Ferrer


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Lancet: Calls for prevention increase as CVD found to cause 40 percent of global deaths

04 Sep 2019 Nutrition Insight

Cancer is now the leading cause of death in middle-aged adults from high-income countries (HIC), while Generation X in middle- and low-income countries (MIC, LIC) continues to be burdened by cardiovascular heart disease (CVD).

The causes of CVD vary by country, but nutrition-related factors are a running theme. This is according to two new reports from the Prospective Urban and Rural Epidemiologic (PURE) study published in The Lancet. Researchers are now calling for governments – especially in less wealthy countries – to bolster investments in CVD prevention and treatment. The findings coincide with the European Society of Cardiology (ESC) Congress 2019 outcome, which highlighted how nutrition should be the main focus when it comes to CVD prevention.

"While long-term CVD prevention and management strategies have proved successful in reducing the burden in HIC, a change in tack is required to alleviate the disproportionately high impact of CVD in LIC and MIC. Governments in these countries need to start by investing a greater portion of their GDP in preventing and managing non-communicable diseases including CVD, rather than focusing largely on infectious diseases," says Dr. Salim Yusuf, Professor of Medicine, McMaster University and Principal Investigator of the study. CVD-related deaths are two and a half times more common in LIC middle-aged adults than in HIC, according to a report that followed 162,534 middle-aged adults in four HIC, 12 MIC and five LIC over a median of nine and a half years. This is despite LIC having a significant burden of CVD risk factors than wealthier countries. As a result, the researchers suggest that the higher CVD-related mortality rate in LIC could be caused by a lower quality of healthcare. This theory is bolstered by the finding that first hospitalization rates and CVD medication use are substantially lower in LIC and MIC, in comparison to HIC. Overall, of the 55 million global deaths occurring in 2017, 17.7 million (40 percent) were caused by CVD.

There is currently an opportunity to realign global health policies to help reduce CVD-related deaths."The world is witnessing a new epidemiologic transition among the different categories of non-communicable diseases, with CVD no longer the leading cause of death in HIC," adds Dr. Gilles Dagenais, Emeritus Professor at Laval University, Quebec, Canada and lead author of the report. "Our report found cancer to be the second most common cause of death globally in 2017, accounting for 26 percent of all deaths. But as CVD rates continue to fall, cancer could likely become the leading cause of death worldwide, within just a few decades."

The factors behind the figures

A second report that examined 155,722 community-dwelling, middle-aged people with no prior CVD history found that 70 percent of CVD cases and deaths are due to modifiable results. These include aspects such as metabolic, behavioral, strength, environment and socioeconomic and psychosocial factors. Metabolic risk factors were the largest contributory risk factor globally (41 percent), with hypertension (22 percent) being the leading factor within this group. This highlights the role of nutrition in reducing CVD risks. "Efforts to tackle CVD through focusing on a small number of behavioral risk factors, such as reducing smoking, are important, but these efforts should expand to better blood pressure control and better use of secondary prevention, with simple and effective low-cost medications," says Dr. Philip Joseph, Associate Professor of Medicine at McMaster University and the co-lead of the paper.

There was also a difference in which population attributable factor (PAF) was most influential over deaths. In MIC and LIC, the importance of household air pollution, poor diet, low education, and low grip strength were substantially larger compared to their impact in HIC. Meanwhile, metabolic risk factors including high cholesterol, abdominal obesity or diabetes, played a larger role in causing CVD in HIC, compared with in LIC. However, for all deaths, the largest overall group of PAFs were for behavioral risk factors, which were behind 26 percent of CVD deaths. "We have reached a turning point in the development of CVD prevention and management strategies," says Annika Rosengren, Professor of Medicine from Goteborg, Sweden. SumathyRangarajan, who coordinated the study says: "There is an opportunity now to realign global health policies and adapt them to different groups of countries based on the risk factors of greatest impact in each setting."

These findings come as experts further highlight how nutrition should be a main focus in preventing premature CVD. Last month, a study found that people who substituted plant protein for meat had a lower total cancer- and CVD-related mortality rate. In this space, it has also been found that the consumption of olive oil and its compounds is associated with reducing CVD risk.

By Katherine Durrell

Low levels of vitamin K linked to mobility problems in older adults

Vitamin K is involved in the production of proteins necessary for the formation of blood clots and strong bones. Researchers at Tufts University have determined than vitamin K may also play a role in mobility range in older adults.

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Vitamin K is the name for a family of fat-soluble compounds that are naturally present in foods such as leafy greens, soybeans, fish, meat, and eggs.

The micronutrient is involved in the production of proteins necessary for the formation of blood clots and strong bones. Researchers at Tufts University have determined than vitamin K may also play a role in mobility range in older adults.

In a recent study, researchers at the Jean Mayer U.S. Dept. of Agriculture Human Nutrition Research Center on Aging at Tufts analyzed data from the Health, Aging, and Body Composition Study to identify risk factors for mobility limitation and disability. They looked at two biomarkers—circulating levels of vitamin K and functional measure of vitamin K—to determine whether there was an association between vitamin K levels and reduced mobility.

The researchers found that older adults who had low levels of circulating vitamin K were almost 1.5 times more likely to have limited mobility and almost two times more likely to have mobility disability compared to older adults with sufficient levels of vitamin K. Limited mobility was defined as two consecutive semi-annual reports of difficulty walking a quarter of a mile or climbing 10 steps without resting; mobility disability was defined as two consecutive semi-annual reports of having great difficulty walking or an inability to walk or climb 10 steps.

Although the results indicate a connection between the amount of vitamin K in the diet and mobility issues, the researchers noted that vitamin K status can also be affected by additional factors that may or may not be known. Therefore, more studies are necessary to fully understand the mechanisms involved in circulating vitamin K levels.

Iron-rich foods may cancel out tomatoes' anticancer benefits

Medical News Today September 18, 2019

New research finds that iron halves the absorption of lycopene. Lycopene is a carotenoid full of antioxidants that is present in tomatoes.

Image © iStock.com/piotr_malczyk

Tomatoes offer a rich variety of health benefits. These range from protecting against cancer and hypertension to maintaining the health of our heart, skin, and eyes. Regarding cancer, previous studies have found a link between lycopene — which is a plant compound present in tomatoes — and a lower risk of prostate cancer, colon cancer, and lung cancer, among others.

Although consuming lycopene-rich foods is good for health, other nutrients that we combine them with may help or hinder their cancer fighting properties. For instance, a small new study now suggests that consuming foods or supplements rich in iron may halve the benefits of lycopene. Rachel Kopec, an assistant professor of human nutrition at Ohio State University in Columbus, was the lead author of the new study. The findings appear in the journal Molecular Nutrition & Food Research.

Why we may only get half the lycopene

Kopec and colleagues set out to examine the "formation and absorption of lycopene metabolites" in seven males who consumed test meals, both with and without iron. The test meals consisted of a shake with tomato extract. The participants drank the shake either with ferrous sulfate as an iron supplement or without. The researchers analyzed the participants' blood and digestive fluids.

"When people had iron with their meal, we saw almost a twofold drop in lycopene uptake over time," explains Kopec. "This could have potential implications every time a person is consuming something rich in lycopene and iron — say a Bolognese sauce, or an iron fortified cereal with a side of tomato juice. You're probably only getting half as much lycopene from this as you would without the iron." "Nutrition can play an important role in disease prevention, but it's important for us to gather the details about precisely how what we eat is contributing to our health so that we can give people reliable, science based recommendations," emphasizes the researcher.


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How does iron counter lycopene's benefits?

Kopec explains the strength of the research, saying that it adds to our knowledge of iron's cellular disruption. "We know that if you mix iron with certain compounds it will destroy them, but we didn't know if it would impair potentially beneficial carotenoids, like lycopene, found in fruits and vegetables," she says. Carotenoids are "yellow, orange, and red pigments synthesized by plants." Alpha-carotene, beta-carotene, lutein, and lycopene are some of the most prevalent carotenoids in the Western diet.

These plant pigments have antioxidant properties, but researchers do not yet know with certainty whether these phytochemicals owe their potential cancer fighting properties to the antioxidants they contain or to other compounds, which may have nothing to do with antioxidants.

In the case of the recent research, the mechanisms behind the lycopene "diluting" effects of iron also remain a mystery. One possibility, however, is that the iron oxidizes the lycopene, creating metabolites other than apo-lycopenoids, which were the only ones the team studied this time around.

"It's also possible that iron interrupts the nice emulsified mix of tomato and fats that is critical for cells to absorb the lycopene. It could turn it into a substance like separated salad dressing — oil on top and vinegar on the bottom — that won't ever mix properly," Kopec explains.

The study authors note that using only male participants in their tests, as well as focusing exclusively on apo- lycopenoids, limits the study findings.

Personalised protein: Why intake needs to be optimised to meet healthy ageing needs - CSIRO study

By Guan Yu Lim 06-Aug-2019 Food Navigator Asia

Australians are consuming inadequate amounts of protein, as well as the wrong sources of it, according to Dr Natalie Luscombe-Marsh, senior research scientist at the Commonwealth Scientific Industrial Research Organisation (CSIRO) in Australia.

Speaking at our Healthy Ageing APAC Summit in Singapore, she shared how CSIRO respond to some of these challenges and the opportunities arising from it.

Personalising protein

A report by CSIRO Australia highlighted Australia's protein deficiencies, with Luscombe-Marsh adding that current global dietary guidelines were not optimal for protein intake."Dietary intakes especially protein need to be personalised according to age, gender, actual body weight, physical activity, health status, medication, and energy needs (which differs for weight maintenance, weight loss or weight gain."Especially for adults above 65 years, they need more dietary protein than younger adults to support good health, promote recovery from illness, and maintain functionality, reported a study published in the Journal of the American Medical Directors Association. Luscombe-Marsh suggested a protein intake of 1 to 1.4g/kg/day for healthy elderly and up to 1.6g/kg/day for pre-frail or frail elderly. An increased protein intake is found to preserve muscle protein synthesis after hospitalisation, increase lean mass when combined with resistance exercise, and overall improve quality of life. She said three groups of people would benefit most from more than 1.2g of protein/kg/day.

Firstly, overweight or obese people who want to reduce weight optimise body composition, maintain strength and function. In an Australian study published in the journal Nutrition, Metabolism & Cardiovascular Diseases, participants following a 30% calorie restricted diet (lower carbohydrate, higher protein) for more than one year had better weight and fat loss. They also saw improvements in lipids, blood pressure, glucose control, and inflammation. The findings seemed to suggest that compliance to high protein diets (1.4g/kg/day) was important in managing obesity.
Secondly, adults over 30 years need protein to help slow age related muscle loss.
Lastly, vegetarians or vegans to ensure they consume enough protein and amino acids from plant-based foods.

Protein distribution

In the report by CSIRO Australia, it also recommended to balance protein intake across all meals. "Australians currently get the majority of their protein at the evening meal, although the new science suggests that amore even distribution helps hunger management and muscle metabolism. It appears that 25 to 30 g protein per main meal is the threshold for benefits."NutraIngredients-Asia previously reported that balancing protein intake across the day helps to achieve maximum rate of muscle synthesis.

Protein sources

In the same report, they found: "Australians are eating significant amounts of protein from foods not considered good sources of protein, such as junk food and cereal-based dishes, due to the large quantities in which these foods are consumed."

It suggests consuming more quality protein whole foods such as lean meat, poultry, eggs, legumes and dairy products. Luscombe-Marsh saw opportunities in this challenge. "We can make more plant based proteins, or fortify core foods with protein."

Given the higher intake of protein necessary for elderly, would the source of protein supplements matter? Luscombe-Marsh and her team had conducted a study published in the journal Pilot and Feasibility Studies. They found twice daily whey (dairy-based) or rice protein supplements given to pre-frail elderly had equal effects at maintaining function over six months.

However, the whey supplement was associated with more gut symptoms. On the other hand, the rice protein needed improvement on the taste and texture. This suggests that the quality of protein supplement may not be as critical for maintaining physical function as long as a sufficient amount (=1.2 g/day) is consumed as part of an overall healthy diet, but more research needs to be conducted. Luscombe-Marsh suggests innovative product development can help to improve the taste and texture of plant-based protein supplements.

Bitter sweet: Korean study shows bitter orange may reduce body weight and cholesterol

By Guan Yu Lim 09-Sep-2019
NutraIngredients Asia

Bitter orange (Citrus aurantiumLinné, CA) has been foundto help reduce body weight and cholesterol in obese mice.

Scientists from Korea have administered bitter orange (Jigak in Korean)to mice fed a high-fat diet to study it as a potential therapeutic target for obesity management. The findings were published in the journal Nutrients.

Mice study

Mice were fed with a 60% kcal high fat diet (HFD) for four weeks to induce obesity. They were divided into two groups (n=5) and fed for eight additional weeks with either HFD or HFD + CA(100mg/kg/day). A control group was fed a normal diet (ND) for 12 weeks. The weights of the mice were measured twice a week, and blood were taken to measure HDL, LDL, and total cholesterol.

CA effect on body weight gain
The research reported that the body weights of HFD and HFD + CA group (50.31 ± 0.84g vs. 40.91 ± 0.91 g, respectively) were significantly different after 12 weeks. The researchers said this could suggest CA can regulate the weight of HFD-fed mice. CA was also found to reduce adipose tissue weight in CA-treated obese mice, decreasing significantly by 35%($p = 0.0143$).The total cholesterol level was also significantly reduced by CA in HFD-fed mice ($p < 0.05$).

The researchers said CA might directly suppress adipogenesis of white adipocytes and regulate thermogenesis of brown adipocytes which were both attractive targets of anti-obese strategy. The findings showed that CA (1000 μg/ml) could suppress lipid accumulation, and reduce mRNA expressioninvolved in white adipogenesis.Adipocyte differentiation or adipogenesis is the process by which pre-adipocytes become adipocytes (lipocytesor fat cells).White adipose tissues are mostly used for storing excess calories.

"In addition, CA treatment reduced levels of PPARγ and C/EBPα, which are both well-known key regulators of adipocyte differentiation," they said.

The paper also reported that CA could regulate thermogenesis of brown adipocytes. According to the researchers, brown fat specialise in energy expenditure to reduce weight gain through thermogenesis (heatproducing).They said, "Our findings revealed that administration of CA significantly reduced body weight in obese mice,suggesting that CA may be a potential option as an intervention to fight obesity."

Potential of CA

Also known as sour orange or marmalade orange, CA is available on the market as a beverage and dietary supplement.There are many studies on its anti-cancer and anti-oxidant effects of CA, but until this paper there were nostudies on CA's mechanism on improving obesity.


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FOOD SCIENCE & INDUSTRY NEWS

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"The need to feel special": Personalized nutrition sector bound for technological growth, expert says

30 Sep 2019 Nutrition Insight

Personalized nutrition will see drastic growth in the next three to five years, including more AI-driven offerings as well as new modes of use, such as embeddables and ingestibles. This is according to what Ashley Desrosiers, Vice President, Personalized Wellness Lead at FoodMinds, tells NutritionInsight.

Desrosiers identifies significant potential for companies and commodities to impact public health through product development, collaborations and integration with existing systems and services. "Demand for more personalized products and services cuts across industries and consumers increasingly expect their unique needs to be met through tailored products and services," she notes.

In the health and wellness and nutrition sectors, personalization is rapidly gaining momentum. Industry is seeing the trend rise with bespoke NPD and nutritional services becoming increasingly mainstream. From tailored gut testing to gene testing and wearable technology, the methods and techniques surrounding personalization are growing.

Desrosiers insights come as FoodMinds – a food and nutrition affairs company – recently published a paper in the journal Nutrition Today, titled Personalized Wellness Past and Future: Will the Science and Technology Co-Evolve? The paper captures the state of the field and explores how science can support the personalized wellness space, as well as offering a look at the future of the sector.

FoodMinds partners with companies to help define their position in target markets and support the co-evolution of personalized wellness science and technology. For companies developing or evolving their strategic approach to personalized wellness, FoodMinds delivers data-driven insights and research pipeline development. In addition it offers strategic communication programs, health professional and influencer engagement strategies, as well as regulatory landscape monitoring and analysis. The company is also a division of Padilla – a media company based in Minneapolis, US.

"Beyond seeking more targeted health and nutrition advice to drive better outcomes, there's an overarching consumer mindset to consider: people want to feel special," Desrosiers says. "Beyond seeking more targeted health and nutrition advice to drive better outcomes, there's an overarching consumer mindset to consider: people want to feel special," Desrosiers says. "FoodMinds can be a concept partner on the best approach for staking a claim in this evolving space."

Increasing sophistication

"Personalized wellness technologies will continue to become more sophisticated, she says and the personalized wellness applications of tomorrow will likely include embeddable, ingestible and digiceuticals. This will offer the nutrition segment greater precision," Desrosiers notes.

She adds that whether by creating more accurate feedback loops that encourage ongoing optimization or simply by prompting greater vigilance around tracking health behaviors, AI and innovative technologies can boost efficacy and offer a greater feeling of control for the end-user.


Image © iStock.com/ronstik

"Precision nutrition – meeting the needs of the individual through tools like genetic testing – can help provide tailored recommendations for certain nutrients. Research tells us that meaningful genetic differences between population segments are often watered down in clinical research or population-level guidance. By taking averages or using the bell curve approach, clusters of common variants are less detectable," Desrosiers notes.

In the same space, nutritional genomics,the study of how genes and nutrients interact to influence health outcomes, can help an individual understand if they metabolize a specific nutrient (such as folate, dietary cholesterol or lactose) differently than other people and what dietary modifications (supplementation, food choices, etc.) might help mitigate the impacts of that genetic variation.

This sort of nutritional interventions and testing, however, can be expensive and difficult for the public to access. Desrosiers says that costs for personalized wellness products and services vary greatly, but from a public health perspective, it is critical for the industry to consider equity and access across population segments.

For the sector to progress further, Desrosiers suggests that several steps have to be taken:

• Building the body of evidence for product development and demonstrating efficacy. Most of the evidence used to inform genetic tests is based on data from people of European descent, so it can be challenging to accurately generalize findings between population groups.

• Wider adoption by health care professionals, especially registered dietitians, who are crucial partners to help consumers interpret results of genetic tests and work with them to implement personalized recommendations.

• Integration of personalized wellness in standards of care for health professionals increased coverage through health insurance and other health funds (e.g., some direct to consumer genetic testing products can be purchased with health savings account (FSA) funds).

Industry moves towards personalization

Major companies have identified the potential of personalization and already made moves in the space. Nestlé Health Science recently entered the space with the acquisition of Persona, a personalized vitamin business founded in 2017.

In April, Dutch multinational Royal DSM partnered with digital health provider Panaceutics to bring to the market "affordable" products geared specifically towards health and wellness.

Last year, DSM also acquired a majority stake in personalized nutrition start-up Mixfit. The combination of DSM's customized solutions and Mixfit's advanced technology means consumers can analyze and receive the nutrients they need at the time they need them and from the convenience of their own homes, DSM reports.

Mayo Clinic and Viome also joined forces to better understand the role of nutrition in disease. Meanwhile, last week, personalization moved into retail as mobile checkout and service counter solutions provider FutureProof Retail (FPR) partnered with Halla, a software company that profiles human taste to help people make better food choices.


Image © iStock.com/DragonImages

Despite the personal nature of the biome, it's a trend with "game-changing" potential, says Innova Market Insights

26 Sep 2019 Nutrition Insight

Awareness of digestive health is moving into the mainstream, with a visible increase of fiber, prebiotics and probiotics in NPD, according to Innova Market Insights.

New data shows that food and beverage launches tracked with a digestive or gut health claim rose 21 percent in 2018 in the Asia-Pacific region alone. "Functional foods were born and driven by gut health claims. The biome is getting more attention than ever and has the potential to be one of the next game-changing food trends," Lu Ann Williams, Director of Innovation at Innova Market Insights, tells NutritionInsight.

In terms of Asia-Pacific market penetration, the baby and toddler subcategory topped the list with digestive health claims used for over 24 percent of launches in 2018, ahead of sports nutrition with 16.5 percent, dairy with 6.6 percent and cereals with 3.7 percent, according to data from the market researcher.

Among this momentous growth, however, Williams notes that R&D challenges remain due to the complicated and extremely personal nature of the science behind digestive health. Nevertheless, she does not believe digestive health awareness is a short-lived trend.

"It's been 25 years and we're still talking about it. Technology has the potential to drive this and industry will eventually go the route of personalized nutrition. As the science around the biome continues to develop, it seems there is the potential to find the perfect mix of foods and supplements to 'feed' our own personal biome to improve our health and wellbeing."

On-trend ingredients are paving the path for NPD innovation in the digestive health space.Consumers are still mainly consuming fiber for digestive health, but newly discovered health benefits are driving applications as well. According to a consumer survey (2018) conducted by Innova Market Insights, 44 percent of US consumers are increasing their consumption of fiber, with 33 percent of UK consumers also doing so. In addition, a 21 percent average annual growth has been reported in new product launches carrying a fiber claim.


Image © iStock.com / Delmaine Donson

Emerging science on gut health has the potential to discover how our microbiome can improve multiple aspects of our health from mood, to weight loss and optimum nutrient uptake, says Williams. "As the science improves, I can see a day when we can feel the effects of good gut health in a more meaningful way. Then it will be a game changer," she concludes.

NPD boom

Taiyo's soluble fiber ingredient Sunfiber has been clinically proven to aid digestive health. Sunfiber has mainly been featured in medical and beverage applications in the past. Now, however, Taiyo is featuring its plans to broaden this scope by combining the ingredient with other bioactives to target health concerns that go beyond digestion, the gut and regularity.

Industry is also quickly taking note of the key ingredients researchers indicate as beneficial for digestive health. Curcumin, chia seeds, coconut, matcha, baobab, avocado, kombucha, and turmeric have been increasingly incorporated into NPD. Dairy continues to be the key area for this space, accounting for 67 percent of Asia-Pacific launches featuring probiotic ingredients in 2018. Activity is rising in other areas as well, with the confectionery and snacks categories showing particular potential.

Made with real fruits and nuts and infused with ingredients such as kombucha, matcha, collagen and turmeric, US-based Tyson Foods' new line of refrigerated protein snacks is set to hit the market. The launch, under its new brand Pact, comes as consumer demand for functional foods and better-for-you options is growing, with the trends influencing the snacking sector as well.

In the snack space, kombucha is visibly moving out of the specialty sector and into the mainstream. Half of the kombucha-featuring launches in the APAC market also highlighted a digestive or gut health claim in 2018.

Besides their immune system-boosting properties, probiotics are also a well-established functional ingredient for digestion and continue to see rising levels of interest, with a 72 percent rise in food and drinks launches featuring probiotics in 2018.

By AnniSchleicher


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"The future of food": Plant-based, personalized nutrition and sustainability inspire start-up innovations

25 Sep 2019 Nutrition Insight

Fifteen innovative start-ups with fresh ideas on foodtech, agri-tech and sustainable packaging are to present at the 2019 Foodbytes! by Rabobank.

The global pitch competition and networking platform connects startups with corporate leaders and investors. From farm waste-based fertilizers to 3D printing for personalized nutrition to labeling solutions for fruit shelf-life extension, NutritionInsight takes a closer look at some of the most interesting start-ups participating.

Plant-based nutrition, future farming technology and circular supply chain solutions were amongst the dominant themes identified.

The winners will have the opportunity to pitch and network at Rabobank's European Advisory Board Meeting in France in April 2020, as well as receive eight hours of tailor-made mentor sessions with Rabobank specialists. In addition, they will benefit from business consultation services from FoodBytes! sponsors, including branding and legal consultation and go-to-market advice.

"FoodBytes! builds lasting connections for food and agriculture startups who may promote a sustainable food and agriculture ecosystem, which will feed the increasing global population – expected to reach 9.8 billion by 2050. Since we launched in 2015, there has been no let-up in the quality of the applicants seeking to make a profound impact and change on the food ecosystem," says Nick Fereday, Executive Director – Food & Consumer Trends at Rabobank and FoodBytes! London judge.

The start-ups – selected based on a specific criteria – will each have three minutes to pitch live on the FoodBytes! London stage.

Foodtech start-ups

In the foodtech category, NOURISH3D has developed a patented 3D printing technology which allows them to combine seven different active ingredients into personalized nutrition stacks, based on consumers' lifestyle and goals.

FoodBytes! builds lasting connections for food and agriculture startups who may promote a sustainable food and agriculture ecosystem."We are able to layer multiple vitamins and supplements into one delicious and convenient gummy stack with less cost, hassle and waste than purchasing all of the active ingredients separately," Melissa Snover, CEO and founder of NOURISH3D, tells NutritionInsight.

"Our innovative 3D printing technology means our stacks have a high impact absorption as they are made on-demand and digested as a macro rather than a pill," she adds. The company has just completed its seed round and will be launching NOURISH3D exclusively into the UK in October 2019, with the aim to expand into the US market in 2020.

Redefine Meat produces animal-free meat with the same appearance, texture and flavor of animal meat, from natural and sustainable ingredients. The company recently announced the completion of a US$6 million seed round. The investment was led by CPT Capital and also includes Israel-based HanacoVentures, Germany's largest poultry company The PHW Group and Israeli angel investors.

Redefine Meat will use the investment to finalize the development of its revolutionary alternative meat 3D printer, which will be released next year. The company is targeting a rollout into mass production in 2021.

Fresh Check offers a simpler, faster and low-cost method of performing crucial hygiene testing with color change spray to warn users about bacterial, chemical or organic contamination. "Ensuring hygienic conditions is critical for all aspects of the food industry, with bad hygiene damaging public health and company reputation.

However, there is only one viable method for on-the-spot confirmation of hygiene in food facilities," Alex Bond, Co-Founder and CEO of Fresh Check, tells NutritionInsight. Fresh Check's color-change spray is pegged as a new tool for the food industry to ensure hygiene that is more affordable, simpler and faster than existing methods.

demand. Our color-change technology is fantastic for the food industry, but there is a range of other products we're excited to continue developing, so more innovation is our goals," Bond adds.

Zero Waste Biotech has developed the Aero-D machine which converts food waste into clean renewable energy, enabling a circular economy. "As an onsite waste to energy conversion technology, we can completely remove the need and cost for waste contractors who come and collect it in their polluting diesel-powered vehicles. We are offering clean renewable energy from food waste with the added benefit of removing CO2e from our atmosphere," Stephen Beck, CEO & Co-Founder of Zero Waste Biotech, tells NutritionInsight.

StixFresh has created peelable stickers for fruit which help to keep them fresh. This presents an all-natural solution to safely extend the shelf life of fruit by up to 14 days. "StixFresh is currently the only sticker-based solution that has shown promise to extend the shelf-life of fruits. Almost every fresh fruit sold is labeled with a sticker at some point throughout its lifetime. Our model is to simply take their current stickers and apply our formulation to the non-adhesive side," Moody Soliman, CEO & Co-Founder of Stix Fresh, tells NutritionInsight.

"Distributors and producers may continue to print their branding of choice on the stickers. By seamlessly adding our technology to a product that already exists within the current supply-chain, StixFresh's product promises to be simple and economical to adopt," he adds.

StixFresh is currently the only sticker-based solution that has shown promise to extend the shelf-life of fruits. Agri-tech Start-ups to look out for
Computomics unlocks the diversity of biological life to enable data-driven decisions that can accelerate sustainable agricultural development, with a focus on biotech, breeding and indoor farming. "We help growers and breeders find the right plants for their environments with our machine learning algorithms. In over 130 projects, we enabled our customers to make data-driven decisions and thereby accelerate sustainable agricultural development that can feed the world, Dr. Sebastian Schultheiß," CEO of Computomics tells NutritionInsight.

LLeaf has developed technology that is best described by the company name, an acronym for Luminescent Light Emitting Agriculture Films. LLeaf technology will help the world to increase food yield by improving the light that reaches plants.

Trellis allows the key players – growers, manufacturers, and retailers – to acquire insights from supply chain AI to accurately predict crop production and yield; supply chain fluctuations; and market trends, resulting in lower costs, improved quality and reduced waste.

Sustainable Consumer Packaged Goods (CPG)

Borrago is a non-alcoholic botanical spirit with "all the flavors and theatre of a cocktail" but without the alcohol. The company's namesake "borage" is also known as the bee flower and they have given away over 100,000 borage seeds to date, as part of their commitment to help save the bees.
The launch comes as the non-alcoholic drinks trend is on the rise, with consumers seeking flavorful alternatives. Recently London welcomed its first alcohol-free pub.

Element Packaging creates innovative packaging solutions made from bamboo paper, plant starch and other sustainable polymers for the Food2Go, Retail, Travel and Fashion sectors, which are fully compostable or biodegradable.

FoodBytes! London will take place on 6-7 November 2019 at Victoria House. With sustainable food systems in mind, the new generation of aspiring entrepreneurs is spearheading innovation in the agri-tech, foodtech and packaging industries.
By Kristiana Lalou

Sensory inputs that are important to texture perception

A new study published in Scientific Reports details exactly why some people have a greater ability to perceive a food's texture and consistency than others.

IFTNEXT September 23, 2019

The texture of food is an important quality that affects whether it is liked or rejected. A new study published in Scientific Reports details exactly why some people have a greater ability to perceive a food's texture and consistency than others.

Researchers from Penn State University learned that some people's tongues can perceive particle sizes, giving them the ability to better detect minor differences in the texture of food.


Image iStock.com/Eva-Katalin

"We've known for a long time that individual differences in taste and smell can cause differences in liking and food intake—now it looks like the same might be true for texture," says John Hayes, associate professor of food science. "This may have implications for parents of picky eaters since texture is often a major reason food is rejected."

The interaction of a food with mechanoreceptors in the mouth leads to the perception of food texture. The researchers went a step further, designing an experiment to see if there was a relationship between oral touch sensitivity and the perception of particle size or a food, in this case chocolate.

First, they used a Von Frey Hairs device to determine how well participants could discriminate between different levels of force applied to their tongues. Then they divided the subjects into two groups—high and low acuity for pressure-point sensitivity. They found that there was a significant relationship between pressure-point sensitivity and chocolate texture discrimination on the center of the tongue for those in the high-acuity group.

Future research may involve studying other foods and investigating how older and/or less healthy people experience oral sensations and perceive texture, and how this affects food rejection behavior.
IFT Next Newsletter

Nielsen: Is the fresh department the 'last stronghold for brick-and-mortar'?

By Mary Ellen Shoup 27-Sep-2019 Food Navigator Asia

As more category sales continue to shift online, the fresh department remains a strong source of foot traffic for brick-and-mortar retailers and will serve as a key way to lure more consumers into stores, says Nielsen in a new report.

Image © iStock.com/RomarioIen

"Fresh is the last stronghold for brick-and-mortar. Retailers that want to win across the store need to focus on fresh," noted Nielsen in its latest report. Americans are increasingly heading online to shop for non-perishables, household items and pet products, making the concept of 'stock up' grocery trips a thing of the past for many shoppers, said Nielsen. E-commerce represents just 4% of grocery sales today, but accounts for nearly one-third of total growth.

When it comes to purchasing fresh, perishable items from fruit, vegetables, and herbs to plant-based and animal proteins, the in-store, physical experience remains consumers' preferred shopping method, according to Nielsen."Fresh is the growth engine of the store, as gains in these perimeter departments translate to total store success. Retailers with well-established fresh departments provide us with a glimpse into the future, and a roadmap for others."

What makes a standout fresh department?

"For fresh retailers, it's about consumers craving a destination, not for stocking up. Experience, personalization and convenience win," said Nielsen. Nielsen analyzed brick-and-mortar retailers based on overall store sales from their fresh food departments and found that the top performers generate 43% of overall sales from perishable foods (compared to an average of 32% for the same measurement across all retailers). Nielsen also found that among the most successful retailers, deli and produce departments provide the greatest contribution to total perishable sales.

According to Nielsen, this trend towards increased spending at the deli and produce departments "likely reflects consumers' changing wellness needs, as well as their growing demands for convenience. With more than three-fourths of deli sales coming from random weight items, top fresh retailers have honed a more authentic, readymade feel."

Within bakery, retailers are winning by pulling in consumers in for everyday items (e.g. breads and rolls) rather than just special occasion items such as cakes and pastries."Too many stores only focus on the sweets portion of their bakery, missing out on the opportunity to bring consumers in on a daily basis for breads and rolls," said Nielsen.

Consumers still require tactile feel for avocados, tomatoes, apples, herbs, and berries

When it comes to purchasing fresh, perishable items, having the tactile experience of shopping in the produce department is still very valuable to consumers, according to Nielsen."Leading fresh retailers understand this, significantly outperforming lesser performers in avocados, tomatoes, apples, herbs and berries. These produce items in particular are ones where consumers look or feel to confirm freshness," noted Nielsen.

Across all US retailers, avocado sales are up 8%, and vegetables are succeeding even more than fruit (up 4.9%in sales vs. a slight increase of 0.3% in sales for fruit). As a result, investing in a stronger vegetable supply chain is a smart business strategy, said Nielsen.

Top fresh departments feature 3x as many plant-based meat alternatives 'Next level' fresh departments also know the importance of stocking the right variety of items for shoppers who are increasingly seeking health-conscious and convenient food options. Top performing fresh retailers have responded by featuring nearly three times as many different plant-based meat alternative offerings as lesser performers—a savvy move, considering nearly 60% of US consumers value dietary balance between plant-based and animal-based foods, said Nielsen. Nielsen added that "as more category sales continue to shift online, retailers need a way to differentiate themselves in stores, and fresh is the perfect place to do it."

'More room for legume': How do consumers react to classic, processed, and meat-replacing legumes?

By Flora Southey 26-Sep-2019 – Food Navigator

Substituting meat with legumes is one way food consumption can become more sustainable, but just how willing are consumers to swap out meat for legumes?

Reducing meat consumption in favour of plant-based foods can help tackle a great number of issues, including global food security and climate change. It is widely acknowledged that the production of legumes – be it lentils, green peas, French beans, chickpeas or soybeans – for example, is more efficient in terms of resources required vs. calorie and protein output. Yet, as it stands, approximately 80% of agricultural land remains devoted to livestock farming. In terms of CO2 emissions, livestock farming has a significant carbon footprint – accounting for approximately 14.5% of human-induced greenhouse gas emissions. According to the authors behind a new study, due for publication in industry journal Appetite later thisyear, the most climate friendly supply chains are built on legumes, and the least friendly are built on red meat. Substituting meat with legumes is therefore one key way food consumption can become more sustainable.

However, the team of researchers from Germany and New Zealand noted, studies to date have largely focused on consumers' willingness to reduce meat consumption, rather than the specific substitution of legumes themselves. "In Western countries, meat consumption is stagnating," Dominic Lemken from Germany's University of Goettingen told FoodNavigator. "With meat substitution at an early stage – meaning that most consumers are noting the practice of swapping out animal protein for plant-based alternatives – there is still a lot to learn about consumer preferences on how lower meat consumption might be acceptable."

Lemken is leading a group of researchers that advocate for a 'less but better strategy', which aims for higher quality and reduced meat quantity. "Against this background, we were curious to learn more about potential pathways to moderate meat consumption," he said.

Comparing 'geographically' diverse Germany and NZ

In order to evaluate consumer reactions to legume-based meat substitution, the researchers – based in Goettingen and at New Zealand's University of Lincoln – conducted a two-country analysis. A total of 633consumer survey samples were analysed from Germany, and 455 from New Zealand. The study acknowledged that consumers have three main options when substituting meat with legumes: Consumers can either replace meat with legumes, use processed legumes as an ingredient in processed foods or use processed legume products that explicitly intend to substitute meat.

Per the findings, more than half of the consumers said they had no intention to use processed legumes or replace meat with legumes. Within a more in-depth cluster analysis, the study revealed a cluster appeared open to considering processed legume products, if they were not marketed as an alternative to meat. The study also revealed that although they are not in the habit of consuming them regularly, many consumers in New Zealand are open to using meat substitutes made from legumes.

And finally, a cluster group said they would prefer to directly substitute meat with specific legumes, rather than consuming highly processed products." In NZ and Germany, a similar share of consumers might be open to substitute," concluded the lead author. Where the reactions differ, however, was in preference for meat substitutes. In NZ, where meat prices are higher than in Germany, these consumers predominantly prefer processed meat substitutes than other substitution options, he explained. Consumers in Germany often seek other options, such as tofu or reduced portion sizes.

Image © iStock.com/vaaseenaa

Potential for authentic food boom?

So what can the food industry take from this? Looking beyond the survey figures, Lemken and his team delved into how each consumer segment could be addressed. Following up with the study lead, Lemken told FoodNavigator that certain aspects of this analysis could be of interest to those in the food production space.

"For example, we often hear that food manufacturers recognise that flexitarians are the main consumers for processed meat substitutions, but some flexitarians are not into products that mimic the taste of meat," he explained. "We have also seen [this] for vegetarian consumers."

Therefore the market for traditional or authentic food products, such as falafel and tofu, could be a target for innovation. Such markets are "probably open for new product varieties and might be more appealing to those consumers", he told us.

With regards to the share of consumers that are open to meat substitutes in NZ, but reject products that mimic meat, Lemken speculated that local manufacturers will need to compete on price and taste. "They will thrive if they can compete on price and taste with [conventional] meat products."

Cute culture? Japan's Takanashi Group launching beauty from-within yoghurt drink

By Guan Yu Lim 05-Sep-2019 – NutraIngredients Asia

Japanese dairy manufacturer Takanashi Group is launching what it believes is the first yoghurt drink for good skin backed by a Food with Function claim (FFC).

The flora yogurt drink claims to relieve dry skin and keep it moist with its functional component, lactic acid bacterium Lactobacillusrhamnosus GG, reported to help moisturise skin from inside. The product is sold as a FFC, and contains 14 billion strains per 100mL.

Skin study

L. Rhamnosus is known for its gut health benefits, but there have also been recent studies in the area of probiotic on skin health. Lolou and Panayiotidis have reported some studies utilising probiotics for normal function of healthy skin as well as their role in the prevention and therapy of skin disease. In one study, participants consuming L. rhamnosus indicated improved levels of skin hydration and cathepsin-L-like activity levels, which is a marker of skin barrier function. Another study reported supplementation with L. rhamnosus improved the severity of eczema by 56% in children. In a study on wound healing, L. rhamnosus induced cell death of pathogens like S. aureus, effectively acting as an antibacterial agent.

Bold beauty

Yuko Nagai, manager in charge of public relations at Takanashi Milk Products, told NutraIngredients-Asia: "The recommended intake is one bottle (100mL) daily."The company said one bottle contains 66kcal energy, 3g protein, 1.2g fat, 11g carbohydrate, 0.1g salt equivalent, and 97mg calcium. It is considered a low-fat yogurt drink, containing 8% fat free milk solids, and 1.2% of cream.

Nagai said the product was aimed at people who were concerned about dry skin as well as those who were concerned about fat content. The full list of ingredients are raw milk (domestic), skimmed milk powder, sugar, fructose, cream, honey, roseextract, and sweetener (potassium acesulfame, sucralose). Rose extract and honey are used for flavour.

As a dairy product, it is suggested to store at 10° C or below. The package is apparently designed with roses to reflect the image of "beauty". Nagai said the product will be launched on October 1, 2019 in supermarkets and convenience stores nationwide. The suggested retail price is JPY138 excluding tax. As the product is different from foods for specified health use (FOSHU), it is not intended to diagnose, treat or prevent any disease.

Beauty forecast

According to a report by Mordor Intelligence, the APAC nutricosmetics market is forecasted to grow at a CAGRof 9.24% to reach USD 2.4 billion by 2024.Within APAC, China, Japan, and Korea continue to be the largest markets for nutricosmetics. The huge population in China and India is expected to further boost the nutricosmetics market growth in the region.

Japan is a mature market for nutricosmetics with functional ingredients like collagen added into foods and beverages including tea, cookies, chocolate, coffee, and water. In January this year, POLA Orbis Holdings launched its Orbis Defencera product, a powder consumed orally. It contains glucosylceramide and is said to prevent skin dryness. This year, Nissin also released its Fermented Hyalmoist Lactobacillus Drink for skin moisturising benefits. Its active ingredient is lactobacillus.

Image © iStock.com/pixelfusion3d

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'A clear signal markets are shifting': Danone and Nestlé among 87 companies committing to a '1.5°C future'

By Katy Askew 23-Sep-2019 – Food Navigator

A total of 87 companies, including food and ingredient corporates, have said they will 'lead the way' towards a '1.5°C future' by joining the UN Global Compact on climate change.

The companies, which represent a combined market capitalisation of US$2.3trn, have pledged to align their businesses with science-based targets to limit the 'worst impacts' of climate change. They have committed to set climate targets across their operations and value chains aligned with limiting global temperature rise to 1.5°C above pre-industrial levels and reaching net-zero emissions by no later than2050.

Image © iStock.com/RapidEye

The companies have also agreed to set science-based targets through the Science Based Targets initiative (SBTi), which independently assesses corporate emissions reduction targets in line with what climate scientists say is needed to meet the goals of the Paris Agreement. The pledge, which was initially issued in June in response to a call UN-baked call to action, was spearheaded by28 companies including Magnum-to-Knorr manufacturer Unilever.

Since that time, the number of companies joining the movement has more than tripled. New signatories from the food sector include Danone and Nestlé as well as UK convenience retailer The Co-operative Group. Various ingredients firms have also added their weight to the effort, with Firmenich, IFF, Novozymes, Royal DSM and Natura among the latest cohort of signatories.

Private sector 'leading the way'
The news comes ahead of the Climate Action Summit, which is taking place in New York this week. The Summit is being hosted by UN Secretary-General AntónioGuterres with the ambition to provide a platform for governments, businesses and other stakeholders to present plans of action aligned with the recent report by the Intergovernmental Panel on Climate Change (IPCC) , which warned of 'catastrophic consequences' should global warming exceed 1.5°C.

Guterres 'challenged' governments to come to the Summit prepared with revamped national climate action plans and long-term net-zero targets. Demonstrating the private sector's support for these efforts, companies are now leading the way, he suggested."It is encouraging to see many first-movers in the private sector align with civil society and ambitious Governments by stepping up in support of a 1.5°C future," said Guterres. "Now we need many more companies to join the movement, sending a clear signal that markets are shifting."

Lise Kingo, CEO and executive director of the UN Global Compact, added: "These bold companies are leading the way towards a positive tipping point where 1.5°C-aligned corporate strategies are the new normal for businesses and their supply chains around the world. This is the type of transformative change we need to deliver on the Sustainable Development Goals for both people and planet."
'Policy makers need to step up'
Firmenich CEO Cilbert Ghostine stressed that the scale of the climate change challenge requires action across government, civil society and the private sector. "Given the scale of today's climate challenge, it is imperative that governments, civil society and business act together to accelerate the transition to sustainable economies," he noted. Likewise, Feike Sijbesma, CEO of Royal DSM, called for a greater commitment from policy makers and regulators globally.

"The need for climate action is more urgent than ever," he warned. "It is critical that policymakers also step up and urgently commit to implement the key policies needed to embed climate action into our financial system, i.e. via carbon pricing. This is the way to unlock the potential from investors and companies from the private sector to support zero-emissions innovations."

Claus Stig Pedersen, Novozymes global sustainability head, added that there is already evidence of a shift in private sector attitudes. This, Pedersen suggested, is being supported by the expectations of the Novozymes' investors as well as the company's food sector customers.

"Climate change is important to investors, customers and our own employees. Many investors view this issue as away to mitigate risks and maximise opportunities. At the same time increasing numbers of investors are expecting companies to reduce emissions from their operations and supply chain – even if they produce low carbon solutions. In addition, many customers want to reduce their product-level carbon footprints, which means they expect us to reduce emissions across our operations and supply chain."

Finger-lickin' good nutrition? Moringa flower-fortified chicken nuggets pass fibre, taste and shelf-life test

By Guan Yu Lim 11-Sep-2019 – NutraIngredients Asia

Moringa flower (MF) extract can increase dietary fibre and antioxidant levels in cooked chicken nuggets, as well as boost antimicrobial properties, according to researchers in India.

Scientists from India have been assessing the potential use of MF extract as a functional ingredient in meats to enhance the nutritional quality, and storage stability, in an attempt to increase fibre levels in everyday food items. They published the findings in the journal Nutrients.

Making of nuggets

The researchers used fresh mature moringa flowers (M. oleifera), which were grounded into powder and extracted using aqueous ethanol. The extract was then centrifuged, and filtered and stored at 2°C. For the nuggets, they used frozen chicken breast meat, which were minced, seasoned and divided into three batches accordingly. Control did not contain any MF extract or other antioxidant dietary fibre (ADF). Treatment 1 (T1) and treatment2 (T2) contained 1% and 2% MF respectively.

Functional benefits: Dietary fibre and antioxidant

The researchers found the addition of MF significantly increased total dietary fibre (TDF) content in the nuggets ($p<0.001$).TDF content was the highest in T2 nuggets (2.03%) followed by T1 (1.39%), while the lowest values were found for control (0.76%). The researchers also said MF extract significantly increase total phenolic content (TPC) in chicken nuggets ($p<0.001$). TPC content (mg GAE/g) was significantly higher in T1 and T2 (0.789, 1.121 respectively) than control (0.059).They added: "Such a high dietary fibre and TPC level in treated chicken nuggets might be due to use of MF extract, which had very high phenolic content (36.14 mg/g dry powder) and [is a] good source of dietary fibre (36.14%)."

Sensory attributes

In addition, the incorporation of MF extract did not influence ($p > 0.05$) texture (hardness, cohesiveness, gumminess and chewiness) of the product. It also did not have any significant impact on the taste of treated chicken nuggets, and may actually have beneficial properties for shelf-life extension. The researchers suggested its antioxidant dietary fibre levels might have acted as stabilising agent for retaining the flavour by inhibiting lipid oxidation.

Storage stability

In assessing 20-day storage in refrigerated aerobic conditions, the researchers found total microbial plate count of T1 (4.66 log cfu/g) and T2 (4.51 log cfu/g) were significantly lower ($p<0.001$) compared to control group (6.46 log cfu/g). "This result might be due to its richness in polyphenolic compounds exerting antimicrobial effects," they said. It is well documented by many researchers that meat products incorporated with natural antioxidants have higher flavour and overall acceptability scores during storage owing to the colour and flavour stabilising effect of them by inhibiting lipid and protein oxidation.

However, the researchers cautioned that the composition of MF is different across locations, due to the "soil type, cultivars, stage of maturity of flowers and influence of the climatic or weather conditions in the region." However, their results indicated that MF is a source of dietary fibre and antioxidant, and can increase the shelf-life of chicken nuggets during 20 days of refrigeration storage. They said MF extract could be used as a safe, natural and valuable antioxidant to the meat industry, apart from offering its functional health promoting benefits.


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REGULATORY NEWS

Foster, not inhibit, innovation": US FDA guidance on digital health tools clears lifestyle apps of oversight

30 Sep 2019 Nutrition Insight

The US Food and Drug Administration (FDA) has issued guidance on how it will regulate "novel, swiftly evolving" digital health tools, such as mobile health software and products that use artificial intelligence (AI).

The new guidelines include the assertion that lifestyle apps will be officially free of FDA oversight. Digital software for health is increasingly popular among both the public and health professionals and the FDA notes that its approach "must foster, not inhibit, innovation."

"Patients, their families and their health care professionals are increasingly embracing digital health technologies to inform everyday decisions, from tools that more easily report blood glucose levels to smart watches that can detect atrial fibrillation," says an agency statement.

"We're making clear that certain digital health technologies – such as mobile apps that are intended only for maintaining or encouraging a healthy lifestyle – generally fall outside the scope of the FDA's regulation. Such technologies tend to pose a low risk to patients, but can provide great value to consumers and the healthcare system," continues the statement.

The FDA decision was shared within the final guidance Changes to Existing Medical Software Policies Resulting from Section 3060 of the 21st Century Cures Act which addresses other digital health provisions included in the Cures Act.

Health care professionals are increasingly embracing digital health technologies to inform everyday decisions, says FDA. Personalized nutritional planning, particularly in the "digiceuticals" sphere, have been an emergent trend coming into fruition over the last few years. Increasingly, leading companies are launching mobile platforms to be used in conjunction with their products, which assist consumers with planning, achieving and sustaining their health and nutritional benchmarks. When synergized with AI, these technologies can prove to be highly attractive to health-conscious, digital-savvy consumers of all ages, who prioritize functionality and efficiency.

For example, in July, the results of a "breakthrough" study in the diet-based treatment of Crohn's disease lent support to Nestlé Health Science's new mobile app for patients, ModuLife, which is incorporating this knowledge in its therapeutic practice.

In April, Dutch multinational Royal DSM partnered with digital health provider Panaceutics to bring to the market "affordable" products geared specifically towards health and wellness.

Meanwhile, a paper published by FoodMinds noted that AI-driven offerings will be a key part of the huge growth which we will see in personalized nutrition in the next three to five years.

She adds that whether by creating more accurate feedback loops that encourage ongoing optimization, or simply by prompting greater vigilance around tracking health behaviors, AI and innovative technologies can boost efficacy and offer a greater feeling of control for the end-user.

Clinical decision software

The FDA guidance also covered digital health technologies that can be utilized by health professionals, such as clinical decision support (CDS) software.

This includes software that analyzes family history, electronic health record data, prescription patterns and geographical data in order to help health care professionals identify patients who may be at risk for opioid addiction.

The press release says the clinical decision support (CDS) guidance is supposed to focus regulatory oversight on CDS functions that are intended to affect clinical management of serious or critical conditions.

“An example of a product we would focus our oversight on would be CDS that identifies hospitalized, Type 1 diabetic patients at increased risk of postoperative cardiovascular events and which does not explain why the software made that identification to the health care professional,” says the press release.

“In this case, if the CDS provides information that is not accurate [e.g., inappropriately identifies a patient as low risk when he is high risk], then any misidentification could lead to inappropriate treatment and patient harm. Since the potential for patient harm is significant, FDA regulation plays an important role in evaluating the software’s safety and effectiveness,” concludes the FDA.

By LaxmiHaigh

Image © iStock.com/Lokibaho

Keeping food safe: How new technology is ensuring food safety and authenticity in Asia Pacific

By Pearly Neo
26-Sep-2019 –Food Navigator Asia

Food borne contamination and illnesses have always been a top-of-mind issue for the Asia Pacific food and beverage industry, especially with the number of such incidents on the rise within the region. That’s why this edition of Asia’s Food Future: Industry 4.0 takes a look at the role that new technology can play to keep food safe.

Data from market research agency Markets and Markets revealed that the global food safety testing market (which covers both tools and technology) was worth some US$17bn in 2018, and is expected to grow at a CAGR of 7.7% to hit US$24bn by 2023.

“This growth will be driven by an increased need for testing, more demand for packaged foods, globalisation in food trade, an increase in food borne disease outbreaks and more contamination incidents,” said the report.

Technology is one of the World Health Organisation’s major priorities when it comes to addressing food safety, and these are expected to deliver ‘significant impact’ by 2030 if properly scaled.

According to food and nutrition consultant Dr Tan SzeSze, food safety is in itself a scientific discipline, and covers ‘the various approaches to handle, prepare and store food in a way to prevent, reduce or eliminate the risk of food borne illnesses’.

“Based on my experience working with Asian food regulators and manufacturers, the most serious food safety issues are faced by the meat and seafood sector as well as the prepackaged food sector,” Dr Tan told Food Navigator-Asia.

“The rise in demand of meat, fish and seafood in Asia has led to the excessive use of veterinary drugs, growth hormone, antibiotics and even illegal chemicals in the final products. These food safety issues are further aggravated by the lack of cold chain, food safety experts and testing infrastructure in many Asian countries, leading to the use of hazardous chemicals such as formalin to prolong the shelf life of fishery products.”

Image © iStock.com/zimmytws

As for food additives, she said that these are widely applied by food manufacturing and food service industries, and more and more new and novel types are 'introduced to the market each day'. "The long term health effect of these new food additives are yet to be determined, [and] many users do not realize that [their usage] must be carefully controlled to ensure consumers' health is not jeopardized," she said.

As a result of the rising affluence in Asian society, the consumption of pre-packed foods and dining out have also increased, which Dr Tan added would 'directly increase the amount and types of food additives' consumed.

Food safety tools and technology
There are a variety of tools in the market today that cater specifically to food safety applications, from on-pack indicators for temperature and gas detection, to point-of-care devices that detect actual contamination.

A popular type of point-of-care device is the scanner and its related technologies, which are particularly important in the primary production of food. One example of such a scanning technology is New Zealand-based company Veritide, which specialises in optical scanning techniques to pick up bacterial and faecal contamination, particularly in meat.

"Traditionally, contamination detection was performed visually by inspectors, but the problem with that, especially considering the speed at which production takes place these days, is that it is very difficult to actually see and spot contamination," Veritide Executive Director Gerard Kilpatrick told Food Navigator-Asia.

"Our handheld scanner is based on technology that allows us to pick up chlorophyll from faecal matter - as the meat is scanned with the fluorescent light, the scanner will react by vibrating and lighting up to indicate the detection of chlorophyll and alert the user of possible contamination. This applies for both visible and invisible contamination – during the processing of meat, a lot of water is used for cleaning, and quite often a lot of the contamination has been watered down and diluted and cannot be seen by the inspector, but our scanner can still pick this up."

Kilpatrick added that the major benefits of such a technology are most prominent when it comes to the cost and time saved."In many places, either a lot of water or an acid wash is used, or the meat is put through a blast furnace to try and remove contamination – this is very expensive and time-consuming," he said."With this technology, you get an instant result and there is no longer any need to wait many hours for swab results to come back from the lab as to whether or not there is contamination. You know the results at line speed on the spot."

Particularly for the Asia Pacific region, Veritide is also looking to further develop their technology to apply to pork and poultry in addition to the current beef and sheep meat, as these two meat sources are 'very substantial' to the region."There's not a lot of chlorophyll in the pork and poultry diets, as they don't need much [green] plant-based foods, but we're working on a solution for this, and hoping to have a solution within six months or so," said Kilpatrick.

The importance of authenticity for safety

In addition to tools and technology specifically configured for food safety purposes, other types of technology that can bring proof of authenticity, such as traceability and platforms/databases carrying comprehensive information, are also gaining in importance within the food safety area.

"Authenticity is a key topic [of discussion] in Asia when it comes to alcohol and is frequently in the news, for example earlier this year when more than 10 people died due to the consumption of [fake] alcohol," beverage technology (BevTech) company Omniaz CEO and Founder Lukasz Piotrowski told us.

Omniaz has developed an alcoholic beverage platform termed DRNK, which not only provides both B2B and B2C users with information covering some 500,000 alcoholic brands within their database, but also looks to provide confidence in the products' authenticity.

"Alcohol definitely is an area where there needs to be more focus, more protection and more custom-made solutions to [curb safety concerns] for consumers such that they do not worry about waking up the next day after consumption and needing to go to the emergency room," he said. "DRNK wants to provide a comprehensive solution, [including] a means of authenticating the bottles, bring a certain level of security for consumers, as well as give the producers a level of guarantee so they can protect their brand."

Asia's major food safety challenges For food manufacturers in Asia, varying regulatory challenges also need to be closely considered when making any changes for food safety, which can in itself be a major challenge, according to Thermo Fisher Scientific Asia Pacific Vice President Commercial Operations, Chromatography & Mass Spectrometry Ian Smith."Domestic regulations such as China's GB standards can be different from international standards such as the European Union's General Food Law Regulation or the United States' Food and Drug Administration (FDA) rules and regulations," he told us.

In addition, there are various external factors that also need to be tackled including the environment, authenticity and integrity, which he described as 'inextricably interlinked in a lot of ways'."For example, at the agricultural level, although pesticides are used to protect the world's crops, their presence beyond pre-defined safety limits could pose health risks to consumers and must be closely monitored," he said."Governments in Asia are taking pesticides seriously. Take China for instance, the Ministry of Agriculture and Rural Affairs (MoARA) is striving to develop more maximum residue limits (MRL) for pesticides in food as well as testing methods."

As a result of this, Thermo Fisher is emphasising technological solutions surrounding informatics e.g. its Lab Information Management Systems (LIMS); and enterprise solutions e.g. the Thermo Scientific Chromeleon Chromatography Data System."These work to ensure traceability as well as to store, manage and access the vast amounts of data associated withfood safety testing," he said.Smith added that over the next 18 to 24 months, food safety concerns surrounding pesticides are expected totake centre stage as a result of these initiatives by China, as well as its updates to the National Food SafetyStandard in early 2020."Transparency and traceability are also key trends in food safety as Asia's consumers take interest in issues about theenvironment, food authenticity and integrity. Food packaging and storage will also be of concern as consumers andbusinesses look towards plastic alternatives that are 'food-friendly'," he added.

FSSAI food safety audits

By Pearly Neo
13-Sep-2019 – Food Navigator Asia

Hazard reduction: FSSAI mandates compulsory third-party food safety audits in six 'high-risk' categories.

The Food Safety and Standards Authority of India (FSSAI) has issued a formal order mandating compulsory third party food safety auditing for all food companies that deal in 'high-risk' product categories in hopes of reducing the need for frequent government inspections. According to the order document, the agency has designated six such 'high-risk' food categories: Dairy, meat, fish, eggs, foods for nutritional uses (e.g. infant nutrition), prepared foods and products related/sourced from these."The food businesses subject to mandatory food safety auditing [in these categories] shall get business audited by a recognized auditing agency at intervals as specified by [FSSAI]," said FSSAI Executive Director (Compliance Strategy) Dr Shobhit Jain, who issued the order.


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The 'clean label' trend and what it means to supplement consumers

By Danielle Masterson 13-Sep-2019 – NutraIngredients Asia

As consumers become more supplement savvy, companies are increasingly under pressure to improve the health profiles of their products. Many companies are opting for various clean label and quality certifications.

SmartyPants Vitamins recently partnered with the Clean Label Project and their portfolio received the Purity Award and Clean Label Certifications for overall rating, product purity, product value, heavy metals, process contaminants and by product contaminants."I think there is an increasing level of suspicion around corporate integrity and in that context, it's important for all of us to do what we can to show people we take this stuff very seriously and consider it a core obligation to do the best we can in everything we do," Courtney Nichols Gould, the co-founder and co-CEO of SmartyPants Vitamins, told NutraIngredients-USA. "More and more, and you can see in surveys, 'clean label' is a term people are starting to look for when shopping, whether that's for food or supplements."

The Clean Label Project is a non-profit organization that focuses on health and transparency for product labelling to help empower consumers. It tests for more than 130 harmful environmental and industrial contaminants and toxins like arsenic, cadmium, lead, mercury, antibiotics, BPA/BPS and pesticides. It also analyses ingredient quality and publishes those results as product ratings on their website.

Jackie Bowen, the executive director of Clean Label Project, told us: “Consumers are increasingly concerned about what they put in and on their body and provide for themselves and their family. Media and academic reports drawing attention to issues like glyphosate residues in America's best-selling beer and wine, arsenic in America's bestselling bottled waters, and lead in prenatal vitamins fuels consumer awareness of industrial and environmental contaminants in the supply chain.

This is especially true and relevant when it comes to the products marketed to pregnant women, infants, and children. Clean Label Project certification serves to prove that these brands are going above and beyond what's required by federal law.”

Bowen says the Clean Label Project works with a variety of brands across a wide range of products. In the supplement space, they’ve partnered with Smartypants Vitamins, Wicked Protein, Puori and Enzymedica. An increase in consumer advocacy attention, calls for action from American Academy of Pediatrics, ConsumerReports, Environmental Defence Fund, and GMO Free USA are all fuelling industry awareness and reform. “Clean Label Project has seen a significant increase in the number of brands changing up their ingredient sourcing and supplier assurance programs,” Bowen told NutraIngredients-USA.

What constitutes a ‘clean label’? Because the FDA doesn’t have a legal definition of “clean label,” the term is open for interpretation. For many, it’s the elimination of allergens and other ingredients. In some cases, it’s less about being simple, and more about transparency. In other situations, it might be sustainability or traceability. For Joshua Eichel, founder and CEO of All In Nutrition LLC, it’s about being able to back up claims. Clean LabelProject awarded his company’s WICKED protein bar with a Certified Clean Label.
“They don’t tell certified brands when they are sampling and testing products. It means that we need to stay on our toes and make sure our ingredient quality consistently remains high. We thought this was a cool and novel approach and much more consumer-focused. Also, many brands say that they are "Clean Label", but what does that mean without a certification behind it? The Clean Label Project is the standard and all brands that say "Clean Label" without the certification are lying until they get their products tested,” Eichel told NutraIngredients-USA.“It’s not just a matter of looking for simpler ingredient decks. Consumers are increasingly interested in a product’s ingredients as well as the purity and label accuracy of those products,” said Bowen.

Oliver Amdrup, the founder and CEO of natural vitamin company Puori, said “In regards to consumer reactions, we are definitely seeing a connection between Puori and the Clean Label Project both in terms of comments and questions directly B2C, but also in our communication with the forward-thinking retailers. That being said, the CleanLabel Project has a long way to go compared to the awareness and knowledge compared to USDA Organic or Non-GMO verified - but we believe the Transparency Project, testing every batch of every finished consumer product, will create far superior consumer safety and efficacy and at the end of the day this is what it’s all about.”
Consumers have a long way to go too
InsightsNow, a behavioural research firm, released their latest report on the Clean Label trend, "Clean Label Research Community Behaviour Report", which identified consumer misperceptions around food, beverage and supplement ingredient claims regarding health-promoting benefits."One identified trend is concern around and attention to functional ingredients in products, so this past wave of the study looked at attitudes and lifestyle behaviours driving consumer choice in this area,” said Dave Lundahl, Founderand CEO of InsightsNow.

The report found that consumers may know a lot about the functional benefits of ingredients, but are uninformed when it comes to some ingredients. For instance, respondents believed that Omega 6 increases energy, even though scientific studies found it actually does not promote energy like a stimulant would. It’s a surprising find since consumers have immediate access to nutritional information at their fingertips. Butit’s a double-edged sword. As access to scientific information increases, so does reliance on social media. According to NBCI, one in three US consumers consult platforms like Facebook and YouTube for health-related matters.

Not all consumers realize that drugs and dietary supplements are regulated differently
Before a drug can be released, it has to go through extensive pre-market approval. In other words, a drug is considered unsafe until it is proven safe. For dietary supplements, there is no pre-market approval process (although there is a pre-market notification process for new dietary ingredients). The Clean Label Project hopes to help fill that gap.“Clean Label Project is trying to fill the void between the testing that is mandatory at the federal level and the chemicals of concern and industrial and environmental contaminants that consumers are concerned about andwant to avoid,” says Bowen.

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