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PFNDAI Bulletin

MAR 2020

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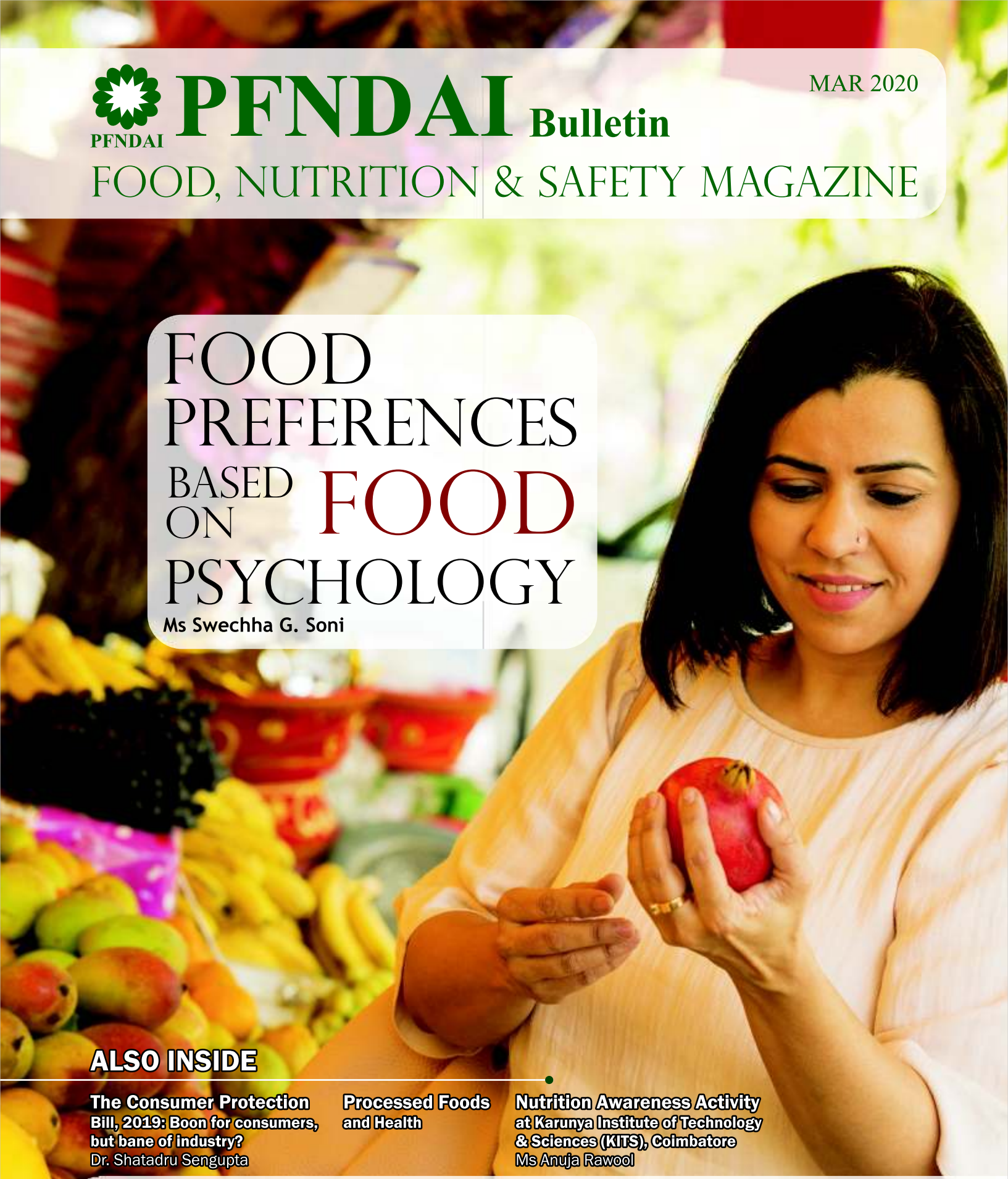

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EDITORIAL

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The Coronavirus problem has shown that slight negligence especially with the safety and hygiene can cause a global havoc.

This becomes difficult when the cause of the problem is not easily seen. The tiny microbes have such potential that being not visible to the naked eye they can colonize inside our body and cause serious effects. Considering them just tiny creatures, and underestimating their potential we have now come to a stage where the Corona crisis has become pandemic. With this, people now understand the importance of safety & hygiene which was earlier not taken much seriously. Safety & hygiene is not just washing your hands regularly & keeping yourself sanitised. It is also important to realise that microbes have a tendency to grow on foods and then enter our body surviving inside and growing in large numbers causing serious detrimental effects. Hence it is necessary for all of us to take extra care & precautionary measures in order to ensure that the food that will be consumed is safe.

While talking about the food industry the measures of handling the food safely starts right from the farm itself and continues to be maintained till it reaches the consumers. This involves the participation of various people in the food chain having different roles with different backgrounds and awareness. Farmers have the knowledge of growing produce that they have learned from earlier generations. During the course of farming produce, the crops are attacked by pests and infested by rodents etc. which sometimes are visible but sometimes not. Hence it becomes difficult to say whether or not the crops were handled safely. There is always a tendency to take action only when you see the problem and try to rectify it. So it becomes necessary for the next person involved in the chain to take all the safety measures and the process continues.

The persons involved in harvest, storage, transport and operations to produce the food products sold in the market are also common people who may not have the knowledge and awareness of safety and hygiene. Some of the staples like grains will have very little problems at this stage but things like animal produce and some perishable plant produce would have to be handled with extra care, the former a little more than the latter.

With the preference of minimal processing of food ingredients and products, there is even greater need to have the awareness. Retailer and consumer become the final important persons who must have awareness in order to maintain the high quality of food which are finally consumed at homes by children, adults and seniors.
Even the vigilance must be such that safety officers of FSSAI should test safety much more carefully than the quality and other aspects. Food Standards & Safety Act 2006 mandates that.

We have seen not just in this epidemic, even earlier ones with bird and swine flu, that misinformation was rampant. It has become easier to spread it with social media and such tools as WhatsApp, Tweets etc. which in a short span can spread it rapidly around the globe. And as Mark Twain had said “A lie can travel half way around the world while the truth is putting on its shoes”.

A sensational piece of information has the ability to be transferred more rapidly and enthusiastically while uninteresting one is not read or passed on even when it is authentic and important.
Probably communicators and educators and purveyors of such information especially of safety and hygiene must make it interesting so people will read. Sometimes puffery is needed to make it interesting but should not go to the extent of stretching the truth.

Making it interesting will also involve making communications attractive by images and attractive graphics. Nowadays there are many tools that could be used to make such communications more interesting. That is why people spend more time on Instagram than on websites. Let us hope that we all come out safely through the present crisis and start making our future safer.

Prof Jagadish Pai,
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FOOD PREFERENCES BASED ON FOOD PSYCHOLOGY

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We have all come across the word "psychology" many times which is the scientific study of the mind and behaviour. If we go to the depth, we could actually relate the happening of each and every thing with a psychological science behind. Have we ever given a thought that why every individual has a preference or a liking towards particular foods?

Food is one of the basic necessities we all need for survival and hence we eat Food. But there are several concepts and thought processes involved behind eating, which is different in each individual's mind and that becomes the basis of their food preferences. It would not be incorrect to say that there is some kind of relationship that we all have with food.

Food Psychology is the science behind choosing food and the way we eat it. In earlier times, people used to have food that would provide energy and nutrients; they did not really have a lot of options and choices. Whereas in today's time, the options available are plenty and choices are vast that makes it difficult for the people to decide what to eat, when to eat and how much to eat. For example, if we go to a coffee shop for having a cup of coffee, we see a list of numerous types of coffees and that too available in the variable of hot & cold forms. So, these variations ultimately put the person in a state of confusion thinking which one to prefer, looking at the multiple options available.

The term Food Psychology brings along with it various concepts that makes it easier to understand how our thoughts influence our food preferences.

Psychological Perception

The way each individual looks at a food at a particular situation is different. For example, think of a loaf of bread presented in front of two men- one who is satiated and the other who is very hungry. The satiated man has just finished his meal and would not even want to have a look at the bread. On the other hand the hungry man would not wait for something for adding on with and would finish the entire loaf of bread. "The satiated man and the hungry man do not see the same thing when they look upon a loaf of bread." Our perception decides when and what we eat. Giving another example, if attending a wedding, no matter how full of stomach a person has eaten from the wedding buffet; there will be still some room left for the dessert and in spite of being satiated the person would go for the dessert thinking that dessert is not a usual affair so can't afford to miss.

Basis of Food Preferences

Lusk and Briggeman identified a set of food values or meta-attributes for which people might have better-defined preferences in order to gain greater insight into why consumers choose certain food products or

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*Source: The Times of India, July 2017

Loggerheads_2019

attributes over others. Specifically, they identified the following values (Lusk and Briggeman, 2009):

- Naturalness, i.e., the extent to which food is produced without modern technologies;
- Taste, i.e., the extent to which consumption of food is appealing to the senses;
- Price, i.e., the amount paid for food;
- Safety, i.e., the extent to which consumption of food will not cause illness;
- Convenience, i.e., the ease with which food is cooked and/or consumed;
- Nutrition, i.e., the amount and type of fat, protein, vitamins, etc., food contains;
- Tradition, i.e., the preservation of traditional consumption patterns;
- Origin, i.e., where the agricultural commodities were grown;
- Fairness, i.e., the extent to which all parties involved in food production benefit equally;
- Appearance, i.e., the extent to which food looks appealing;
- Environmental impact, i.e., the effect of food production on the environment.

Acquisition of preferences

We basically do not understand how food preferences arise. There are four documented avenues to preference change.

1. Mere exposure-- Generally, the more one is exposed to something, the more one likes it. Cultural traditions, family practices and peer preferences all influence the pattern of exposure an individual has. Mere exposure has been demonstrated as an influence on food preferences.

2. Social influence- This is a vague but very important category. There is some evidence indicating that approval of admired others, experiencing the enjoyment of others on eating a particular food, and things of that sort can produce enhanced (or for the opposite case, decreased) liking.

3. Rewards & Punishments- It is also commonly believed that a range of rewards and punishments is effective in shaping food preferences.

4. Genetic Influence- It has been identified that food preferences are influenced by genetic factors. Genetic influences that are involved in determining food selection are known to affect several physiological processes.

In a study, the researchers studied some genes and found that they did play a significant role in a person's food choices and dietary habits. For example, higher chocolate intake and a larger waist size was associated with certain forms of the oxytocin receptor gene, and an obesity-associated gene played a role in vegetable and fiber intake. They also observed that certain genes were involved in salt and fat intake.

Psychology behind Choosing Food

Why are we choosy about some foods? Have we ever tried to find out what actually in the food makes us to choose or reject the food? How each of us think about eating is so distinct that if a group of people were looking at the same plate of food, no two people would choose the same food with similar thoughts.

Let us say, a plate with pasta, chicken and salad is presented in front of (1) A woman wanting to lose weight, (2) An athlete and (3) A pure vegetarian. The woman wanting to lose weight would always think of staying away from calories and in the plate would see calories and fat so she would prefer having chicken or salad and looks at pasta with a fear. An athlete would have on his mind thoughts of gaining muscle mass and might look at the plate looking for protein. The athlete would focus on chicken and look past the other foods. A pure vegetarian could see the distasteful sight of a dead animal and wouldn't touch anything on the plate.

Each individual goes through a thought process and looks for specific components in food, based on which they choose or reject the food.

Psychological Beliefs

Apart from all the thought process that goes on in our mind before choosing foods, there are also certain psychological beliefs that are set in our minds to which we give strong associations that influence our food choices. Some of the beliefs that revolve around are as follows:

- "Salt will raise my blood pressure."
- "Fat will make me fatter."
- "Sugar will rot my teeth."
- "I can't make it through the day without my cup of coffee."
- "This meat will raise my cholesterol level."
- "This calcium will build my bones."

To a certain degree, some of these statements may be true. But sometimes these beliefs are associated to foods so strongly that it affects the diet pattern of an individual.

Psychological Factors affecting Food Choices

Psychological factors relate to the mind and the emotions. They are difficult to describe, and differ from person to person depending on their lifestyle and upbringing. Some psychological factors such as beliefs, habits, values and past experiences with food have a constant influence on the foods selected, while choices made as a result of emotions, self-concept and attitudes can vary from day to day.

• Values

A value is a deep personal feeling about what is important. Values are strong enough to motivate a particular action. A person's values may reflect those of the family and culture in which they were raised, or they may be a personal response to the experiences encountered throughout life. In terms of food selection, the values most likely are related to food origins and the maintenance of health. They respect the rights of all living things to exist in peace, free from pain. Vegetarianism is often a reflection of value- based food selection. A person may find the thought of killing and eating an animal revolting, or they may disagree with the conditions under which some animals are raised as a food source. Some people value an animal's right to freedom so highly that they do not agree with the consumption of any animal products, including eggs, milk or other dairy products.

• Beliefs

Beliefs about what is acceptable to eat vary throughout the world and are often related to religion and cultural heritage. A belief is an opinion or conviction which need not be based on positive scientific proof. Beliefs can be challenged and changed, unlike values that remain fixed. Many religions have food customs and impose restrictions on what their followers eat . Partial vegetarians may eat fish, eggs and dairy products but cannot eat red meat. (They believe it is wrong to kill or injure living things other than fish.) As well as religious customs, some social groups and cultures have specific beliefs about food. Many of these beliefs cannot be substantiated and have little, if any, nutritional basis; many of the fad-diets. Some cultural beliefs often prohibit the eating of specific foods and lead to food taboos. Such taboos are most common in primitive cultures and they may, unfortunately, restrict the consumption of food products that are good sources of essential nutrients. In an area of midAfrica, people believe that animal milk is a repulsive body secretion similar to urine. Consequently it is not consumed, despite its nutritional value. Some people in remote areas of SouthEast Asia avoid eating eggs or chicken because they are believed to destroy human fertility.

• Attitudes

An attitude is the way in which a person views something and behaves towards it. Some people have an attitude of being optimistic always that even if they are suffering from a particular health condition; they are so sure about it getting cured without consulting a physician that this condition of theirs over the time becomes worse. For example, it is essential for an individual, deficient in iron to take iron supplements for a while and focus more on consumption of iron rich foods and foods that would help absorption of iron in the body. But with the attitude of optimism, the individual would first of all, not be really convinced about his health condition (as the individual has a positive attitude towards its health) and even if the person is convinced about it, he is very sure about it getting cured without the need of going to an expert, which in a way would drown him more in the health condition he is suffering from.

Being optimistic is a good manner of leading a happy life but when it comes to health issues it is not really a good idea to worsen it due to an over optimistic attitude.

• Self- Concepts

Self-concept is a word used to describe how we feel about ourselves (self-esteem) and the way we see our personal appearance including the size, shape and weight of our body (body image). Based on these self-concepts, the thought process for food goes to an illness level.
People become obsessed with food, weight and body image issues. This causes them to drastically change their eating habits; they may begin to eat extremely small or extremely large portions of food on a regular basis. They may even stop eating for a significant period of time (this does not include people who fast for religious or cultural reasons). These are known as eating disorders and are serious mental illnesses that can cause significant damage to one's health. Some of these are as follows:
Anorexia Nervosa: People suffering from anorexia constantly starve themselves and have an intense fear of gaining weight. They believe they are overweight even when they are severely underweight. Their self-esteem is linked to their body image, and this distorted body image causes very low self-esteem.

Bulimia Nervosa: People suffering from bulimia go through episodes of binge-eating, which are followed by purging (forceful vomiting), excessive exercise or use of laxatives and diuretics, or long fasting periods to get rid of the weight gained. They do this because their self-esteem is strongly linked to their feelings of control over food.

Binge-eating disorder: People with this disorder have frequent episodes of binge-eating in which they feel out of control. They do not try to purge or lose the weight but have a strong sense of shame associated with their eating habit. This may lead to them eating alone to hide the habit, sometimes even if they aren't really hungry. However, these are

completely treatable and the sooner one reaches for help, the higher the chances of recovery.

Food on the Mind- Insights from Food Psychology

Different Scientists have shared, various insights relating to Food Psychology as follows:

1. You don't know when you're really full

We tend to think that the amount of food we eat is a result of how hungry we are. It's a factor, but not the only one. We are also affected by the size of the plates, serving spoons, packets and so on. Our stomachs provide only crude messages about how much we've eaten. Instead we rely on our vision and the eye is easily fooled.

2. Fat is Bad

Many people think that high-fat food is bad. Here, the problem is that not all fats are bad; in fact some are very good like PUFA & MUFA that are necessary parts of our diet. As a result people avoid small snacks with high-fat content in favour of large snacks with low-fat content. In reality the low-fat snack may have way more calories simply because it's much bigger. Because people think that fat is bad, some foods get unfairly categorised as bad, while other low-fat foods are supposed to be good. This leads to the situation where people regularly under-estimate the amount of calories in low-fat, 'good' foods and over-estimate the calories in high-fat 'bad' foods.

3. Carrots taste weird for Breakfast

If we talk about a particular food for example a carrot, we either like it or do not like it based on our personal preferences. And say if you like it, what if you had to eat it, on its own, at six o'clock in the morning? Does it taste the same then as it does mixed in with other vegetables and meat, and eaten at the 'usual' time of day? The context in which food is eaten affects us much more than we might imagine. This includes the time of day; who is around us and where we are.

4. Suppressing food thoughts leads to bingeing

People on diets who habitually try to suppress their thoughts about food are more likely to experience food cravings as well as being more prone to binge eating (think of the day when you are fasting)

5. If it is Healthy, you can eat more

In studies, when people are given the same food, but in one instance it is labelled healthier, they will eat more than when it is labelled unhealthy. It's another situation in which foods tagged as healthy can be bad for us because they encourage higher consumption, as everything is good in moderation and not in excess.

Colour Psychology in Food Marketing

We at times do a colour analysis of our wardrobe to determine what colour would go best in pair to look perfect. But, have you thought about how colours affect the way we feel about the food we eat?

"We eat with our eyes." "This makes colour critical in almost every aspect of successful restaurant designs." — Jackie Lohrey.

Colour psychology has been used in marketing for a long time. For example, if we notice, red is the colour most used by fast food chains, followed closely by yellow and orange. Yellow and orange are colours that make people feel hungry. The colour red is associated with emotion and passion. So when one sees red combined with yellow and orange, they become passionately hungry. Green and earthy tones are usually used for eco-friendliness, natural, organic, healthy food choices. For those who are conscious about healthy eating, these colours are appealing.

Just like how the marketers play with colours to make it more attractive for the consumers, similar case is with flavours too. Hence, we see a particular type of product available in a variety of flavours like cream & onion, schezwan, chinese, red hot spicy and many others in order to make the street food flavours available in the packed forms for the consumers.

To Conclude

What we eat affects how we feel. Food should make us feel good. It tastes great and nourishes our bodies. If you eat too little or eat too much, however, your health and quality of life could be affected. This can result in negative feelings toward food. By learning how to make healthier and more mindful choices, one may be able to control undesired eating behaviours. By taking charge of their appetite, one may also gain a feeling of calm, high energy levels, and alertness from the foods eaten.

While we often have the best intentions to eat healthier, this is often a challenging task. However, if the thinking (therapy focusing on identifying self-defeating thinking patterns) and behaviour (identifying the person's eating patterns and finding ways to change eating behaviours) towards food is monitored well, it is possible to indulge in mindful food preferences and develop a healthy eating behaviour.

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THE CONSUMER PROTECTION BILL, 2019:

BOON FOR CONSUMERS, BUT BANE OF INDUSTRY?

Image © iStock.com/Jirsak

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Introduction and abstract :There is a new incoming law on the horizon to which not many in industry have been sensitized. This is the Consumer Protection Bill, 2019 ("the Bill"), and is intended to replace the existing Consumer Protection Act, 1986("the 1986 Act") when finally enacted. This new law has many unique features, introduces new concepts not seen thus far in the Indian regulatory landscape, and is a clear break from the past. While its intentions are laudable and consumers will no doubt be empowered and benefited, there are significant risks for all consumer-facing industries, members of which will be well-advised to familiarize themselves with the provisions of the Bill and prepare to face the challenges posed by it to their current way of working.

Statement of Objects and Reasons (SOAR): The SOAR acknowledges that there have been shortcomings in the 1986 Act, including as to the speed of disposal of cases. Furthermore, it notes that consumer markets for goods and services have undergone drastic transformation since the enactment of the 1986 Act. It goes on to say that the modern market place contains a plethora of products and services and that the emergence of global supply chains, rise in international trade and the rapid development of e-commerce have led to new delivery systems for goods and services and have provided new options and opportunities forconsumers. It cautions us that the consumer has been rendered vulnerable to new forms of unfair tradeand unethical business practices. Lastly, it calls out misleading advertisements and new channels such as tele-marketing, multi-level marketing, direct selling and e-commerce, which pose new challenges to consumer protection and will require appropriate and swift executive interventions to prevent consumer detriment. Hence the need for the Bill.

Some critical definitions :Under the Bill, the definition of deficiency has been expanded to include
(i) anyact of negligence or omission or commission which causes loss or injury to the consumer; and(ii) deliberate withholding of relevant information from the cconsumer. Furthermore, for the first time, consumer rights have been explicitly defined, and inclusively so, as including :
(i) the right to be protected against the marketing of goods, products or services which are hazardous to life and property;
(ii) the right to be informed about the quality, quantity, potency, purity, standard and price of goods, products or services, as the case may be, so as to protect the consumer against unfair trade practices;
(iii) the right to be assured, wherever possible, access to a variety of goods, products or services at competitive prices;
(iv) the right to be heard and to be assured that consumer's interests will receive due consideration at appropriate fora;

(v) the right to seek redressal against unfair trade practice or restrictive trade practices or unscrupulous exploitation of consumers; and
(vi) the right to consumer awareness;
Interestingly, "misleading advertisement" has now been defined for the first time and explicitly, thus :"misleading advertisement" in relation to any product or service, means an advertisement, which—
(i) falsely describes such product or service; or
(ii) gives a false guarantee to, or is likely to mislead the consumers as to the nature, substance, quantity or quality of such product or service; or
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service provider thereof, would constitute an unfair trade practice; or
(iv) deliberately conceals important information;

Very relevant to the food industry, it may be noted that for the first time, “goods” have been defined to include food.

Unfair Contract: The Bill recognizes that many contracts or dealings or arrangements involving consumers can be one-sided or skewed against the consumer, and thus introduces the definition of “unfair contract” thus : "unfair contract" means a contract between a manufacturer or trader or service provider on one hand, and a consumer on the other, having such terms which cause significant change in the rights of such consumer, including the following, namely:—
(i) requiring manifestly excessive security deposits to be given by a consumer for the performance of contractual obligations; or
(ii) imposing any penalty on the consumer, for the breach of contract thereof which is wholly disproportionate to the loss occurred due to such breach to the other party to the contract; or
(iii) refusing to accept early repayment of debts on payment of applicable penalty; or
(iv) entitling a party to the contract to terminate such contract unilaterally, without reasonable cause; or
(v) permitting or has the effect of permitting one party to assign the contract to the detriment of the other party who is a consumer, without his consent; or
(vi) imposing on the consumer any unreasonable charge, obligation or condition which puts such consumer to disadvantage;

Product Liability: The Bill introduces "product liability", which means the responsibility of a product manufacturer or product seller, of any product or service, to compensate for any harm caused to a consumer by such defective product manufactured or sold or by deficiency in services relating thereto.

Risks for Endorsers: For the first time, endorsers of products or services can be penalized by the relevant authority. The Bill lays down that if the Central Authority is of the opinion that it is necessary to impose a penalty in respect of false or misleading advertisement, by a manufacturer or an endorser, it may, by order, impose on manufacturer or endorser a penalty which may extend to ten lakh rupees; provided that for every subsequent contravention by a manufacturer or endorser, a penalty which may extend to fifty lakh rupees, may be imposed.

Prison terms for adulteration: Very relevant to the food industry, the following punishments have been introduced by the Bill :

• Grievous hurt to consumer :Upto 7 years prison and Rs.5 lakhs fine
• Death of consumer :Minimum 7 years to Life imprisonment, and Rs 10 lakhs fine

A relevant definition of “Adulterant” has been included in the Bill, meaning any material including extraneous matter which is employed or used for making a product unsafe. The burden of proof to prove otherwise will naturally lie on the food industry.

A new regulator-cum-enforcer: The CCPA : A new statutory authority, the Central Consumer Protection Authority, or the CCPA, is sought to be created by the Bill. The CCPA will have wide powers to regulate matters relating to violation of consumer rights, unfair trade practices and false or misleading advertisements which are prejudicial to the interests of public and consumers and to promote, protect and enforce the rights of consumers as a class. It will have an Investigation Wing headed by a Director-General. The CCPA will have powers as follows :

a) protect, promote and enforce the rights of consumers as a class, and prevent violation of consumers rights under this Act;
(b) prevent unfair trade practices and ensure that no person engages himself in unfair trade practices;
(c) ensure that no false or misleading advertisement is made of any goods or services which contravenes the provisions of this Act or the rules or regulations made thereunder;
(d) ensure that no person takes part in the publication of any advertisement which is false or misleading

The CCPA will have further powers to do things as follows :
• inquire or cause an inquiry or investigation to be made into violations of consumer rights or unfair trade practices, either suomotuor on a complaint received or on the directions from the Central Government
• review the matters relating to, and the factors inhibiting enjoyment of, consumer rights, including safeguards provided for the protection of consumers under any other law for the time being in force and recommend appropriate remedial measures for their effective implementation

• recommend adoption of international covenants and best international practices on consumer rights to ensure effective enforcement of consumer rights
• encourage non-Governmental organisations and other institutions working in the field of consumer rights to co-operate and work with consumer protection agencies. This is particularly worrisome to industry.
• mandate the use of unique and universal goods identifiers in such goods, as may be necessary, to prevent unfair trade practices and to protect consumers' interest
issue safety notices to alert consumers against dangerous or hazardous or unsafe goods or services
• pass orders for recall of goods or withdrawal of services which are dangerous, hazardous or unsafe (and also order reimbursement of prices to purchasers)

Most worrying, however, is the fact the Bill empowers the Director-General (DG) with powers of search and seizure. Not unlike income tax and other tax laws, raids by the DG can be conducted on industry.The Bill provides that the CCPA may, after receiving any information or complaint or directions from the Central Government or of its own motion, (translated : on its own sweet will or on its own discretion) conduct or cause to be conducted a preliminary inquiry as to whether there exists a prima facie case of violation of consumer rights or any unfair trade practice or any false or misleading advertisement, by any person, which is prejudicial to the public interest or to the interests of consumers and if it is satisfied that there exists a prima facie case, it shall cause investigation to be made by the Director-General or by the District Collector.

Summary :In a nutshell, therefore, industry needs to wake up to the pitfalls brought about by the new consumer law and by means of appropriate representations by industry associations to the relevant authorities, ensure that there is a balance between the interests of all stakeholders, be they consumers or industry, so that the noble intentions of the Bill are carried into effect without causing undue harm to industry and without diluting the ease of doing business in India.

COMING EVENTS

5th International Conference on Clinical Nutrition
Apr 8-9, 2020
Dubai UAE
E: Contactus@pulsus.com

5th Nutrition Summit India
Apr 23-24, 2020
Holiday Inn Mumbai Intl Airport
E: sheeba.mirza@inventicon.in
W:
https://nutritionsummitindia.com
T: +91 (022) 6608 9643

Personalized Nutrition Co-development Event
May 28-29, 2020
Shanghai, China
T: +86 132 62930934
E: marcia.liu@personalized-nutrition.cn

SIAL Innovation Expo
May 13-15, 2020
Shanghai, China
T: +86 (0) 10 6588 6794
E: info@sialchina.cn

Protein Foods & Nutrition Development Association of India (PFNDAI) Seminar on Connecting Responsibly with Consumers
June 10, 2020
Hotel Orchid, Near Domestic Airport Mumbai
E: nutritionist@pfndai.org
T: 022-2353 8858/8998

5th Nutraceuticals & Functional Food Asia Pacific Summit 2020
June 17-18, 2020
Singapore Marriott Tang Plaza Hotel, Singapore
T: +86 21 55800330 ext 8033
E: Mia.Shen@duxes.cn

IIPAD 2020
India Intl Poultry, Agri & Dairy Expo 2020
31 July & 1st & 2nd Aug 2020
Palace Grounds Bangalore
M: 095353 88966
T: 080 23506387
E: sales@tdci.co.in
W:
www.tentdecorcateringindia.com

PROCESSED FOODS AND HEALTH


Image © iStock.com/JGalione

Processed foods are considered by some to be inferior to unprocessed foods. They remind of packaged foods with ingredients like artificial colours, flavours and other additives. They may be called convenience or pre-prepared foods and are suggested to cause obesity and other chronic diseases including heart disease and diabetes. However, its definition varies widely.

USDA defines it as one that has undergone any changes in its natural state. Raw agricultural commodity is washed, cleaned, milled, cut, chopped, heated, pasteurised, blanched, cooked, canned, frozen, dried or dehydrated, mixed, packed etc. to change its natural state. The food may include addition of other ingredients such as preservatives, flavours, nutrients and other additives or substances like salt, sugars and fats. The Institute of Food Technologists adds more terms like storing, filtering, fermenting, extracting, concentrating, microwaving & packaging.

By these standards virtually all foods in supermarket would be termed "processed" to some degree. As food begins to deteriorate and lose nutrients soon after harvesting, even apples undergo four or more processing steps before consumers buy it. That is why it is useful to differentiate between various degrees of food processing and their implications.

Types of food processing

Popular system to classify processed foods, NOVA classification, which is recognised by WHO and FAO was introduced in 2009 groups foods into 4 categories based on degree of processing.

Unprocessed or Minimally Processed Foods

Natural edible food parts of plants and animals are called Unprocessed Foods. Those slightly altered for the mail purpose of preservation without substantially changing nutritional content are called Minimally Processed Foods. These processes include cleaning and removing inedible or unwanted parts, grinding, refrigeration, pasteurisation, fermentation, freezing and vacuum packing. Minimal processing allows storage of foods for longer time and keeps them safer to eat. Many fresh fruits, vegetables, whole grains, nuts, meats, and milk fall into this group.

Processed Culinary Ingredients

These are ingredients obtained from minimally processed foods by pressing, refining, grinding or milling. These are normally not eaten as such but used to prepare minimally processed foods. Examples are oils from plants, seeds, and nuts or flour and pastas made from whole grains.

Processed Foods

These are foods from two previous groups to which salt, sugar and/or fats have been added. Some canned fruits and vegetables, some cheeses, freshly made bread, and canned fish are examples. Usually these are made from at least 2-3 ingredients and can be eaten without further preparation.

Ultra-processed Foods

These are also called "highly processed foods" and are foods from previous group which are go beyond mere addition of salt, sugar and fat but also containing artificial colours, flavours and preservatives that promote shelf stability, preserve texture, and increase palatability. Making involves several processing steps using multiple ingredients and is speculated to be designed to specifically increase cravings among people to overeat them.

They are typically ready-to-eat with minimal additional preparation. Some may tend to be low in fibre and nutrients. Some examples are sugary drinks, cookies, some crackers, chips, and breakfast cereals. Some frozen dinners, and luncheon meats. Some people may eat these partially if not completely replacing minimally processed foods. One survey found that ultra-processed foods account for about 60% of total calories in the American diet. Some suggest correlation between rise in obesity and sale of ultra-processed foods.

The NOVA system is recognised by the WHO and FAO. It is not yet been accepted by US FDA. It is being criticised for being too general in classification of certain foods, causing confusion, e.g. yogurt may fall into more than one category. Plain yogurt is minimally processed but fruited yogurt may either be labelled processed or ultra-processed depending on how much sweetener and other chemical additives are added. As NOVA does not give comprehensive list of specific foods in each category, consumers may be left to guess where each may fall.

Is processed food unhealthy?

At least some processed foods are found in most people's kitchens. They save time in meal preparation. Some processed and fortified foods provide important nutrients which are otherwise not available or when food budget is limited. Processed and also ultra-processed foods can provide key nutrients. Some nutrients like proteins can be retained throughout processing while others like B vitamins and iron could be added back if lost in processing. Fruits and vegetables frozen quickly after harvest can retain most of vitamin C.
Foods fortified with specific nutrients have prevented deficiencies and their health problems in certain populations. Infant cereals fortified with iron and B vitamins prevent anemia. Milk is fortified with vitamin D to prevent rickets. Wheat flour is fortified with folic acid for prevention of birth defects and iodine added to salt prevents goitre.

Processing such as pasteurisation, cooking, and drying can destroy or inhibit growth of pathogens. Additives like emulsifiers preserve the texture of foods such as preventing peanut butter from separating into solid and liquid parts. Processing also delays spoilage of food, preserves desirable sensory qualities of food such as flavour, texture, aroma and appearance. It also increases convenience in preparation of a complete meal. Processing also has some drawbacks. Many nutrients are degraded or removed during processing depending on the degree of processing. Peeling of fruits, vegetables and dehulling of whole grains remove plant nutrients (phytochemicals) and fibre. Heating and drying also may destroy some vitamins. Although some nutrients could be added back but it is not possible to recreate the original food. If you are wondering whether to include highly processed food in diet, it may be useful to evaluate its nutritional content and long-term effect on health. One with unevenly high ratio of calories to nutrients may be considered unhealthy. Research supports an association of high intake of sugar-sweetened beverages and higher risk of obesity, diabetes and heart disease. However, processed foods containing beneficial nutrients such as olive oil or rolled oats have been liked with lower rates of these chronic diseases.

Decoding the ingredients list on a food label

It is a good general practice to be aware of specific ingredients in a food, but it may be more useful for those with food allergies or intolerances, diabetes or digestive diseases. In many cases, longer ingredients list indicates highly processed food. However, an ingredients not recognisable or having a chemical name is not necessarily unhealthy. Following may be kept in mind when looking at ingredients list. The ingredients are listed in order of quantity by weight. This means ingredient with highest quantity is listed first and one weighing least is listed last. Some ingredients like sugar and salt may be listed by other names. For example, alternative terms for sugar depending on source are corn syrup, high-fructose corn syrup, honey, agave nectar, cane sugar, evaporated cane juice, coconut sugar, dextrose, malt syrup, molasses, or turbinado sugar. Besides salt, sodium may be present in mono-sodium glutamate (MSG) or disodium phosphate.
If food is highly processed, it may contain several food additives like artificial colours, flavours, or preservatives. Their ingredients names would be less familiar. Preservatives promote safety of food by preventing growth of mould and bacteria. Others help prevent spoilage or "off" flavours from developing. Examples of some additives are:

- Preservatives: ascorbic acid, sodium benzoate, potassium sorbate, tocopherols
- Emulsifiers (prevent separation of liquid and solids): soy lecithin, monoglycerides
- Thickeners (stabilisers) add texture: xanthan gum, pectin, carrageenan, guar gum
- Colours: artificial FD&C Yellow No 6 or natural beta-carotene to add yellow hues

Fortified foods contain vitamins and minerals added to them. Either these nutrients are lost during processing, or they were added because they are lacking in average diet. Examples are B vitamins (riboflavin, niacin, niacinamide, folate or folic acid), beta carotene, iron (ferrous sulphate), vitamin C (ascorbic acid), vitamin D, or amino acids to boost protein content (L-tryptophan, L-lysine, L-leucine, L-methionine). In the preparation of highly/ultra-processed foods ingredients commonly used include saturated fat, added sugar and sodium in various salts have become markers of poor diet quality due to their effect on heart disease, obesity and high blood pressure. A large number of calories in ultra-processed foods come from added sugar according to some estimates.

The bottom line

Food processing encompasses basic technologies like freezing or milling to the incorporation of additives that promote shelf stability or increase palatability. Generally emphasizing unprocessed or minimally processed foods in daily diet is optimal. Use of processed foods is the choice of consumer and there are pros and cons with each type. Nutrition information on label and ingredients list can be useful in deciding when to include a processed food in the diet. There is some association shown with some highly- or ultra-processed foods and poor health outcome mainly because of use of added sugar, excess sodium and unhealthy fats.

Adapted from: The Nutrition Source from Processed Foods & Health of Harvard TH Chan School of Public Health (https://www.hsph.harvard.edu/)

NUTRITION AWARENESS ACTIVITY AT KARUNYA INSTITUTE OF TECHNOLOGY & SCIENCES (KITS), COIMBATORE

By
Ms Anuja Rawool,
Food Scientist,
PFNDAI

PFNDAI had organized a Nutrition Awareness Activity at KITS on 24th January 2020 in collaboration with their Department of Food Processing Technology. The total participation of students and professionals was about 300. Seven colleges from Coimbatore had participated. The theme of the Activity was ''Nutritional Transition with Urban Lifestyle.'' The sponsors of the events were MARICO, RUCHI SOYA and JRS RETTENMAIER. Recipe competition was supported by Ruchi Soya and JRS Rettenmaier by providing soya granules, chunks and fibres for the competition.

Two competitions were organized: Recipe Competition & Poster making competition. There was huge participation in all the competitions. For the recipe competition the theme was Protein and Fibre Rich Recipes for which the following samples were provided to the participants by Ruchi Soya and JRS Rettenmaier:

1. Ruchi Soya : Nutrela Soya Granules & Chunks
2. JRS Rettenmaier : Vitacel Dietary Fibres

There were two sub categories in the recipe competition, one was protein rich recipes and the other one was fiber rich recipes. There were total 21 teams (09 for the protein rich recipe category and 12 for the fiber rich recipe category) each team having two participants for the recipe competition. The Judges: Dr V M Berlin Grace, Professor Dept of Biotechnology KITS; Dr. Ashlesha Parchure, Founder VR FoodTech; Mrs. M.Vijayalakshmi, Senior Dietitian PSG Hospitals and Dr. J. Jannet Vennila, Professor Dept of Biotechnology KITS took efforts in going through all the recipes, tasting them and evaluating to find the best two recipes for each sub category.

The Poster making competition had 8 teams having two participants each. Students were given the theme of Label Design for a Healthy Food conveying its benefits. The idea behind this theme was to evaluate the understanding of food labels among students. The students were asked to explain their food label posters. The posters were evaluated by Dr Ashish Mandlik GM - QC/R&D, Sakthi Sugars Ltd. - Soya Division. First three winners were awarded.

WINNERS

PROTEIN RICH RECIPES

1st prize: Mr A.N.Sathya Raayan & Mr S.P.K Vinayaga Selven (Kongu Engg College)
2nd Prize: Ms Jassena K & Anjana Sreedharan (Hindustan College of Engg &Tech)

FIBRE RICH RECIPES

1st Prize: Ms Nawfiya Fathima & Ms Sushmitha.V.S (PSGR Krishnammal College for Women)
2nd Prize: Ms E. Kavya & Ms K Preethi (The American College Madurai)

POSTER MAKING

1st Prize: Ms D Anitha & Ms K B Matheswari (The American College Madurai)
2nd Prize: Ms Keren Marry Sam & Ms I Princy (KITS)
3rd Prize: Mr K Mohan & Ms L Shageetha (The American College Madurai)

TECHNICALSESSION

Dr Jacob K Annamalai, Professor & Dean of Food Processing and Engineering, KITS welcomed all delegates and gave a brief introduction to their Department and University.

Ms. Anuja Rawool Food Scientist, PFNDAI then introduced PFNDAI and its activities to the participants as well as the audience.

Dr. N. Ramasubramanian – Director VR Food Tech presented a talk on "New platforms to deliver nutrients for changing life style" wherein he spoke about the Millennials &Consequences of changing life style in them. He later spoke on how we can deliver a better nutrition to a Millennial by use of various platforms. He also introduced about the Ready to drink or eat requiring no preparation. He talked about Innovative Beverage Bottles having dry probiotic cultures to maintain the highest efficacy without the need for refrigeration and snacks which have a longer shelf life and has a low fat and high protein content in it that can deliver micro and special nutrients. He ended his talk by mentioning Transdermal Nutrient Delivery.

Dr Rohini Sharma – Consultant Nutritionist and Food Technologist presented a talk on Optimum Fat Nutriture: Striking a Balance. She spoke on Importance of fats in daily diet and explained the chemistry of fats and types of fatty acids. She also talked about the oil consumption pattern in India and contents of different vegetable oils and what are the benefits of Blendings oil and also highlighted about the guidelines given by FSSAI.

Dr T V Ranganathan – Professor Food Processing and Engineering Karunya Institute of Technology & Sciences presented on Soya In Human Nutrition where he gave an overview about soya bean and Soy protein. Further he gave a brief introduction on Soy Proteins and Peptides and their Health Benefits. He also spoke about bioavailability of Lunasin in commercial available products. He concluded by adding the Anti cancer activity of soy proteins and peptides & Isoflavone content of soy products and also the Health benefits of soya phytochemicals.

Mr V Lakshmhanan – Director Jayams Marketing spoke on Dietary Fiber and its Opportunities He spoke on Natural Dietary Fibre and what is the daily requirement of fibre in different age groups. He also explained about types of fibres and dietary fiber source and also the function and effects of Dietary Fibre.He further added about the Opportunities/ Ideas for Fiber incorporation in convenience foods and the technological advantages of Insoluble Fiber.

The seminar was followed by prize distribution to the winners of competitions. The speakers and the judges were awarded by a Token of appreciation by PFNDAI.The program ended with the vote of thanks to the Sponsors, Speakers, Judges, Organizers, participants and the audience.

We would like to thank our Sponsors: MARICO, RUCHI SOYA & JRS RETTENMAIER for extending their support towards this activity.


Dr. Ramasubramanian, Director, VR Food Tech Pvt. Ltd.

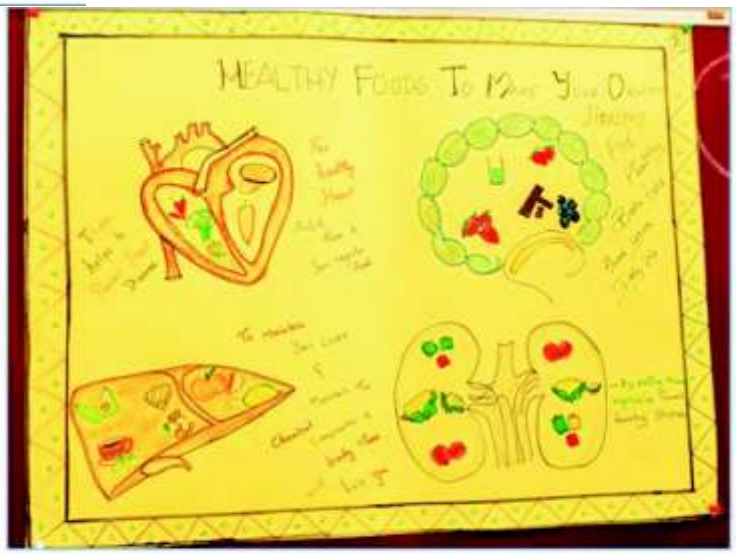

Dr. TV Ranganathan, Prof Dept of Food Processing & Engineering

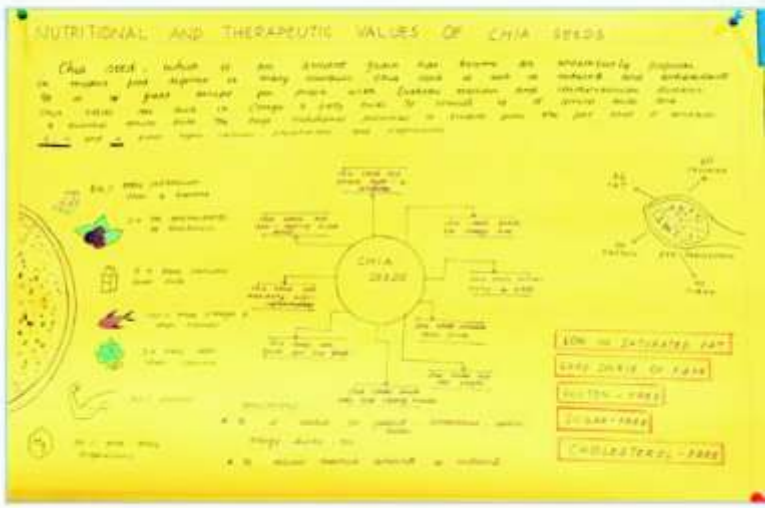

Dr. Rohini Sharma, Consultant Nutritionist


Mr. V. Laxmanan, Director- Jayams Marketing

Dr Ashish Mandlik judging the Poster Competition

Mrs Vijayalakshmi Judging The Fibre Category Recipe Competition





Some Posters from the Poster Making Competition

PFNDAI

Karunya Institute of Technology & Sciences

Department of Food Processing Technology

In Collaboration with

PROTEIN FOODS AND NUTRITION DEVELOPMENT ASSOCIATION OF INDIA

Organizes

'NUTRITION AWARENESS ACTIVITY'

and

Seminar on

"Nutritional Transition with Urban Lifestyle."

On Friday 24th January, 2020

Event Supported by: Marico, Ruchi Soya, JRS Rettenmaier

Recipe ingredients by: Ruchi Soya, JRS Rettenmaier

Venue: Elohim Auditorium, Karunya Institute of Technology & Sciences

Karunya

marico

Nutrela

JRS

BACKDROP

Speakers, Judges and Organisers: Dr V.M. Berlin Grace, Mr V. Lakshmanan, Dr T.V. Ranganathan, Ms Anuja Rawool, Mrs Vijayalakshmi, Dr Ashlesha Parchure, Sr Rohini Sharma, Dr Ashish Mandlik, Dr Ramasubramanian

Dr Rohini interacting with the Participants

RECIPES

REGULATORY ROUND UP

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

Dear Readers

We, as a whole world, are going through an unprecedented crisis. It is a war with the world on one side and an invisible enemy on the other. Let us take all the necessary precautions, support each other and the government in winning this war which WE SHALL. It may not be out of place to thank all the doctors, nurses, the paramedical and other supporting staff, bank employees, sanitary staff and all others who are providing us the essentials so that we could safely quarantine ourselves in the comforts of our homes. Please Stay Safe.

Please find below the notifications issued by FSSAI since the last round up.

In an office memorandum dated 23 March 2020, the Food Authority has categorized services like food import clearance, FSSAI notified laboratories and renewal of licenses as essential services and will be available despite the lock down.

FSSAI has put up a document which maps the HS codes with food category system and clauses under FSS (Food Products Standards and Food Additives) Regulation 2011. The matrix also indicates the risk level associated with each category of food which in turn may decide the controls to be exercised in terms of sampling, etc. I find the matrix confusing and in many cases misleading. HS code is based on a very broad classification and correlating with FSSR clause is fraught with danger as the standards are vertical standards and hence specific. In many cases, the products with the same code have different FSSR clauses. This may lead to products being tested under a FSSR clause which it may not comply with leading to rejections, litigations etc. I find a better correlation between HS code and food category. The stakeholders are requested to study the matrix in detail and send in their objections including if any category is missed out, on or before 04 April 2020.

In a timely note, FSSAI states that food is not a carrier of Covid 19 and hence imported food, meat products are safe from the point of view of this virus. The note requests the continuation of hygienic practices.

FSSAI in its endeavour to recognize the food business operators who follow the regulations with regard to use of cooking oil, has decided to award RUCO (Reused cooking oil) stickers. The process involves compliance to regulation, audit by food safety officer, etc. Application for RUCO stickers is voluntary.

Various Scientific Panels and Committee have been reconstituted.

RESEARCH IN HEALTH & NUTRITION

Image © iStock.com/YsaL

Arla Food Ingredients underscores milk protein hydrolysate potential for infant allergies

17 Dec 2019 Nutrition Insight

Milk protein hydrolysates can provide a key way to manage allergies and discomfort when breastfeeding is not possible.

This is according to Arla Food Ingredients (AFI), who highlight clinical studies that have observed a reduced risk of atopic dermatitis in infants fed hydrolyzed infant formulas compared with those based on intact proteins. However, rock-solid backing is becoming more important as regulation cracks down. "Milk protein hydrolysates have been on the market since 1942 and launches of infant formulas containing hydrolyzed proteins are rising. Looking ahead, documentation is becoming more important. This is partly because it's a requirement in Europe, but also because allergy is on the rise and there is a growing need for preventive strategies," Lotte Neergaard Jacobsen, Pediatric Research Scientist at AFI, tells NutritionInsight.

Gastrointestinal discomfort is more common in infants fed on formula than those who are breastfed. This is because formula contains more protein than human milk, and as protein can be difficult to digest, it can be hard on the infant's gut.

However, milk protein hydrolysates – the result of an enzymatic process in which protein is cut into smaller peptide fragments – can help address these issues. Industrial enzymatic hydrolysis is similar to the natural breakdown of proteins that takes place in the gastrointestinal system during digestion. Jacobsen notes that production-wise, the process is relatively straightforward.

"However, the outcomes can vary depending on factors, such as the raw material used, enzyme combination and hydrolysis length. This is important because different hydrolysates have different functional properties for infant health," she says. Jacobsen further explains that when someone with a milk allergy drinks a glass of milk, the immune system will recognize specific parts of the protein – called epitopes. These can be linear or conformational areas on the proteins. They are not problematic for non-allergic individuals, but in people with allergies, the immune system will react. This eventually leads to degranulation of immune cells, releasing substances such as histamine, and giving rise to allergic symptoms.

"Therefore, in allergy management, it is important to destroy or minimize epitopes, for example, by enzymatic hydrolysis. When ingesting hydrolysates the immune system of the allergic individual will not see the peptides as 'milk' and therefore they won't react. In comfort formulas, the theory is that hydrolyzed proteins are already 'predigested' by enzymes, and are therefore easier to digest," she adds.

Formula contains more protein than human milk, and as protein can be difficult to digest, it can be hard on the infant's gut.

According to Innova Market Insights, global launches of formula products with whey protein hydrolysates increased by 8 percent CAGR between 2014 and 2018. Additional consumer research by AFI found that 32 percent of mothers worldwide and 49 percent of those in China, were aware of whey protein hydrolysates. Of those who were familiar with the ingredient, 31 percent expressed a preference for formula containing it. Jacobsen also notes further regional differences. "In Europe and the US, hydrolysates are used in both Food for Special Medical Purposes (FSMPs) and infant formulas, where they offer benefits for both allergy management and comfort. They're not particularly widespread in China, where they're primarily used in FSMPs." AFI highlights its portfolio of scientifically proven milk protein hydrolysate products with its Lacprodan and Peptigen ranges. In one study, high-risk infants were either breastfed or given a hypoallergenic formula based on Peptigen IF-3080. There were no significant differences regarding the development of atopic dermatitis or measured immunological outcomes.

Recently, AFI also launched new whey protein hydrolysate, Lacprodan HYDRO.PowerPro, which is ideal for powder shakes and ready-to-drink protein beverages. Joe Katterfield, Health and Performance Nutrition Development Manager at AFI told NutritionInsight that whey protein hydrolysates have traditionally been known for their bitter taste. However, this launch is touted as being 50 percent less bitter than similar offerings on the market.

Meanwhile within the infant health sector, the company launched two maternal supplementation prototypes under the Smart Mama concept to support children's cognitive development during pregnancy and lactation. The drinks contain milk fat globule membrane (MFGM). Earlier this year, a survey found that as many as 20 percent of pregnant women and mothers were already aware of the importance of MFGM in infant nutrition.

By Katherine Durrell

More harm than good? Artificial sweeteners' health risks spotlighted in new research

19 Dec 2019 Nutrition Insight

Artificial sweeteners may be doing more harm than good, according to research conducted at the University of South Australia (UniSA).

A new review reveals that people who use low-calorie sweeteners (LCS) are more likely to gain weight and may be at higher risk of developing Type 2 diabetes (T2D). While the association with weight gain is not surprising to the researchers, LCS's association with T2D is a novel discovery with confounding findings, requiring further research to confirm its validity. The study notes that the global LCS market is a billion-dollar industry, as the sector scrambles to respond to consumers' demands for healthy and sugar-reducing sweeteners.

The researchers systematically reviewed numerous studies, clinical trials and chronic clinical studies regarding artificial and natural sweeteners, such as sucrose, glucose and stevia. Overall, they found that non-nutritive sugar (NNS) consumption did not have a clear effect on the incidence of T2D or on glycaemic control, despite there being some evidence revealing that artificial sweeteners can change gut bacteria and thus kickstart the development of T2D.

The researchers encourage further studies on sweetener consumption to be conducted to draw a firm conclusion about the role of NNS consumption on glycaemic control. Professor Clifton warns that artificial sweetener intake does not reduce overall sugar."It is common clinical practice to recommend the use of artificially sweetened drinks in place of full sugar ones.

Therefore, it is important to know if this is safe," UniSA's Professor of Nutrition Peter Clifton, tells NutritionInsight. "This is particularly significant due to the 200 percent increase in LCS usage among children and 54 percent increase among adults in the past 20 years."

A psychological issue

While artificial sweeteners may be lower in calories and sugar, consuming them does not reduce overall intake of sugar. "It is a psychological issue. People feel they have permission to indulge in their favourite foods because they use artificial sweeteners in their tea and coffee," Professor Clifton flags. Meanwhile, more research is required to establish to what extent LCS are equally harmful as standard sugar and what dangers they may present. Currently, however, they are not more likely to make people gain weight, he notes.

Diet and purchasing behaviour play a key role in weight management and disease prevention. Professor Clifton regards a healthy diet, including plenty of whole grains, dairy, seafood, legumes, vegetables and fruits and plain water, as a better preventative measure than low-calorie sweeteners. "Health practitioners need to modify their advice to people wanting to lose weight to cover all aspects of their diet, not just soft drinks and added sweeteners," he maintains.

More awareness of sugar and their alternatives is needed for consumers to make healthy purchasing choices.

The sweet buzz

A recently published data analysis from the International Stevia Council (ISC) on the attitudes and perceptions around stevia found that discussion of the sweetener doubled the online social conversation in English- and Spanish-speaking countries. The focus has shifted away from recipes and taste and is now more in conjunction with weight loss assistance, as well as diabetes and blood sugar management, the ISC states. Results of a French study issued in September have associated soft drink consumption, including both sugar- and artificially-sweetened drinks, with an increased risk of overall death.

The study found that consuming two or more glasses of soda daily increased the risk of early death from all causes. In related developments, an American Academy of Pediatrics (AAP) policy statement calls for the amount of no- or low-calorie sweeteners to be listed on product labels to help families and researchers better educate themselves on regular consumption and any possible health effects.
By Anni Schleicher

Euromed's pomegranate and olive extract supplements found to boost heart health

19 Dec 2019 Nutrition Insight

Euromed's natural olive and pomegranate polyphenol extracts can offer synergistic heart health and blood flow supporting effects, according to new research.

With a regular intake, the natural active substances produced by the Spain-based company's supplements, Mediteanox and Pomanox, may also help reduce cardiovascular risk. Inspired by the phytochemical compounds found in the Mediterranean diet Euromed hopes to provide the benefits of the diet in targeted supplements, curbing cardiovascular disease (CVD).

"Our main objective of using the entire pomegranate and olive is to preserve the most powerful natural active ingredients of the fruits – the polyphenols punicalagins and hydroxytyrosol in pomegranates and olives, respectively. Following several pilot studies that evidenced the health properties of the extracts, it became clear that the combination of the two was the most promising concept for cardiovascular health," Andrea Zangara, Scientific Marketing Manager at Euromed, tells NutritionInsight.

The study estimates that approximately 23.3 million people will die from CVD in 2030, which is likely to remain the world's foremost cause of death.

The study saw 84 middle-aged study participants supplement their diets with Pomanox and Mediteanox for eight weeks, with 67 completing the study. It found that supplementation with the two ingredients can restore healthy ranges of atherosclerosis markers, in line with results from larger and longer studies on the Mediterranean diet.

This was particularly evident for test subjects who, at the beginning of the trial, had signs of endothelial dysfunction (ED) and high oxidized low-density lipoprotein (LDL) cholesterol, but no CVD symptoms. Delivering the European Food Safety Authority (EFSA)-recommended hydroxytyrosol, Mediteanox helps to prevent the oxidation of LDL-cholesterol in plasma, maintain metabolic health in subjects at risk of metabolic syndrome, as well as support general health through powerful antioxidant and anti-inflammatory properties. Likewise, Pomanox is able to improve endothelial function, muscle fatigue and cholesterol levels as well as reduce insulin resistance and modulate blood pressure, the company notes.

Olives and olive oil are a staple of the Mediterranean diet. Mediterranean diet not enough?

Adhering to the Mediterranean diet can help support healthy aging, mostly mediated by a high intake of polyphenols and other phytochemicals, Zangara assures. While he also advocates for consuming pomegranate juice, olives and olive oil, the daily amounts required to achieve improved health benefits may not be achievable.

"The quantity of calories associated with such large amounts of fruits and olive oil may not be suitable or recommendable to everyone. In this context, it makes sense to identify research and provide some of the most promising phytochemical compounds in standardized and practical formats."

Target markets

Targeting younger consumers, Pomanox, in particular, is promoted for mood and cognitive support, gut health, sports nutrition, weight management and nutricosmetic applications, in addition to heart health. Currently, the Euromed researchers are investigating the ingredients' applications in skin, joint, oral and eye health, Zangara explains. Animal health is another target market, as well as the prevention of bacterial infections and as a natural foods preservative.

As they are both suitable for baking and water soluble, the food and bakery industry is another growing demand. Euromed offers both Mediteanox and Pomanox in different formats and strengths for use in premium dietary supplements, functional foods, cosmetics and pharmaceuticals. Both are extracted using safe and eco-friendly, water-only technologies and are free from contaminants, organic solvent residuals and toxins.

Government support for healthy diets

The study received support from the HENUFOOD consortium of the CENIT program of the Ministry of Economy and Competitiveness of Spain. "This strategic alliance is a clear example of public-private cooperation in R&D in the food and health sectors, responding to the growing social concern for these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issues. It also demonstrates the need for support from public institutions to advocate for healthy diets and lifestyle habits that influence people's health. This can help prevent the most common risk factors in chronic diseases, such as hypertension and cardiovascular diseases," Zangara concludes.
By Anni Schleicher

Be mindful of your microbes: Dietary recommendations for healthy indulgence over the holiday season

20 Dec 2019 Nutrition Insight

The holiday season can easily lead to excess eating and drinking, with busy schedules and holiday feasts spurring opportunities for overindulgence on overly sweet and high-calorie meals.

The British Nutrition Foundation (BFN) and the APC Microbiome Ireland of the University College Cork (APC) present their health-boosting dietary recommendations to help holiday enthusiasts navigate through the festivities from Christmas Eve to New Year's Day without overstraining microbial or digestive health. "When we feed, our microbes feed, when we feast on Christmas dinner, so should your microbes. We have to be mindful of what lands on the menu for microbes. The Christmas meal message should be to indulge intelligently over the Christmas period and balance out your meal with something beneficial for your gut," Dr. Harriët Schellekens, Department of Anatomy and Neuroscience at APC, tells NutritionInsight.

A balanced diet includes so much more than just healthy foods.Indeed, a diverse microbiome is essential for human health and wellbeing. With this in mind, the APC advocates for fresh, colourful vegetables, fermented foods and drinks, as well as alternatives to overly sweet snacks, such as nuts and fruits. "If we overindulge on unhealthy foods, we not only wreak havoc with our gastrointestinal system, immune system and metabolism, but also our brain. More and more evidence is showing that our gut microbes also help maintain a healthy functioning brain," Dr. Schellekens says.
While antibiotics have saved countless lives, the APC dissuades from them, as they have led to the global challenge of antibiotic resistance. It is more beneficial to stay updated with vaccinations and take adequate rest to recover when suffering from a viral illness, the research institute affirms.

Starting New Year's resolutions right

Although many start the year with the best intentions to get healthy, following a complicated diet plan can often just be too time-consuming and too expensive to keep up. To make New Year's healthy menu pledges last, people are encouraged to take a step back to consider the basics of healthy eating before over-committing to complex diet plans.
"We know that it's hard to keep up with New Year's diets and so we want to promote making manageable changes that fit within your lifestyle and can be maintained in the long term," a spokesperson at BNF tells NutritionInsight.

The foundation points out that healthy food doesn't have to mean cooking absolutely everything from scratch. The term "processed foods" covers a wide range of different foods with varying nutritional qualities. Food manufacturers are increasingly finding ways to address the needs of consumers with busy lives who still seek nutrient-dense foods in their meals. Innova Market Insights listed "The Right Bite" as one of the top ten trends for 2020, pointing to a growing consumer interest in solutions for nutritionally fortified meals in a hurry.

The BNF acknowledges that finding time to cook healthy, balanced meals during the week can be difficult – particularly for parents juggling work, school, and other clubs and activities. To what extent prepped meals can be healthy depends on the composition of the foods, the spokesperson says.
The research institutes flags overindulgence during the holiday season can be harmful to our gut health."It is really important that people have access to healthy, convenient foods, as many of us have very busy lives. This means it is not always possible to cook everything from scratch. It would be great to see health being taken more into account in cooking instructions for ready made foods, for example, encouraging adding plenty of vegetables to cook-in sauces and suggestions around serving with whole grains," they say.

Putting the right foods on the plate is not the only thing people can do to healthily get through the festive winter period. Both the APC and the BNF promotes getting enough physical exercise, especially during the holidays. "It can be hard to get active when it's cold and dark, but this is really worth doing as it has many health benefits in terms of both physical and mental wellbeing," the BNF spokesperson emphasizes. Dr. Schellekens echoes this sentiment, outlining, "We know that our microbes thrive when we stay fit and exercise, so it is good to wrap up warm and take a few long walks for you and your microbes. You can take your family along – or not."
By Anni Schleicher

Fatty meal interrupts gut's communication with the body, but why?

If that second helping of prime rib stuns your gut into silence, is that good or bad?

Science Daily December 17, 2019

A high-fat meal can silence communication between the intestine and the rest of the body, according to a new Duke University study in zebra fish.

While using the fish to examine cells that normally tell the brain and the rest of the body what's going on inside the gut after a meal, a team of Duke researchers discovered that a high-fat meal completely shuts down that communication for a few hours. The cells they were looking at are the entero-endocrine cells, which occur sparsely throughout the lining of the gut, but play a key role in signalling the body about the all-important alimentary canal. In addition to releasing hormones, the cells also have a recently-discovered direct connection to the nervous system and the brain. These cells produce at least 15 different hormones to send signals to the rest of the body about gut movement, feelings of fullness, digestion, nutrient absorption, insulin sensitivity and energy storage.

"But they fall asleep on the job for a few hours after a high-fat meal, and we don't yet know if that's good or bad," said John Rawls, an associate professor of molecular genetics and microbiology in the Duke School of Medicine. Since entero-endocrine cells are key players in digestion, the feeling of being full and subsequent feeding behaviour, this silencing may be a mechanism that somehow causes people eating a high-fat diet to eat even more. "This is a previously unappreciated part of the postprandial (after-meal) cycle," Rawls said. "If this happens every time we eat an unhealthy, high-fat meal, it might cause a change in insulin signalling, which could in turn contribute to the development of insulin resistance and Type 2 diabetes." To understand the silencing better, the researchers tried to break the process down step by step in zebra fish. After they first sense a meal, the entero-endocrine cells trigger a calcium burst within seconds, initiating the signalling process. But after that initial signal there's a delayed effect later in the after-meal period. It's during this later response that the silencing occurs, said Rawls, who also directs Duke's Microbiome Center. The silenced cells change shape and experience stress in their endoplasmic reticulum, a structure that assembles new proteins. It seems that these entero-endocrine cells, which are specialized to synthesize and secrete proteins like hormones and neurotransmitters, become over-stimulated and exhausted for a while.

The team tried the high-fat diet on a line of germ-free zebra fish raised in the absence of any microbes, and found they didn't experience the same silencing effect. So they began looking for gut microbes that might be involved in the process. After screening through all the kinds of bacteria found in the gut, they saw that the silencing appeared to be the work of a single type of gut bacteria, called Acinetobacter. These bugs are normally less than 0.1 percent of the total gut microbiome, but they increased 100-fold after a high-fat meal and were the only bacteria able to induce the silencing effect. "Next we want to understand how Acinetobacter evokes this interesting response," said Lihua Ye, a postdoctoral fellow and lead author on this paper. "We also suspect other bacteria might also have this capability."

Rawls said they aren't sure why silencing occurs, nor whether it has any positive effect on the fish. It might be a way to prevent excessive signalling about the fat, but by being silenced completely like this, the cells won't be communicating anything else either.
"We don't understand yet what the long-term impact of entero-endocrine silencing would be on metabolic health," Rawls said. "This may be a maladaptive response to high-fat feeding that impairs the normal regulatory functions of these cells, leading to metabolic disorders like insulin resistance. But it's also possible that the silencing is a beneficial adaptation to protect the animal from over-stimulation of the gut cells."

Eating too much -- not exercising too little -- may be at core of weight gain

Science Daily December 18, 2019

Forager-horticulturalist children in the Amazon rainforest do not spend more calories in their everyday lives than children in the United States, but they do spend calories differently.

That finding provides clues for understanding and reversing global trends in obesity and poor metabolic health, according to a Baylor University researcher in a study published in Science Advances. "Conventional wisdom suggests that an increasingly sedentary and germ-free lifestyle, resulting in low daily energy expenditure, is a primary factor underlying rising rates of obesity in the U.S. and elsewhere," said Samuel Urlacher, Ph.D., assistant professor of anthropology at Baylor University. "The findings of our study challenge that notion. We demonstrate that Amazonian children with physically active

lifestyles and chronic immunological challenges don't actually burn more calories than much more sedentary children living here in the U.S." “This similarity in energy expenditure suggests that the human body can flexibly balance energy budgets in different contexts," Urlacher said. “Ultimately, eating too much, not moving too little, may be at the core of long-term weight gain and the global nutrition transition that often begins during childhood.”

The study -- "Constraint and Tradeoffs Regulate Energy Expenditure During Childhood" -- is published in Science Advances, a journal of the American Association for the Advancement of Science. Standard models in human nutrition assume that habitual energy use is "additive," such that exercise and other metabolic tasks increase total daily energy expenditure, which is the total number of calories that humans burn each day. Consistently exercise more, spend more total calories. However, that model has been increasingly challenged by studies suggesting that total daily energy expenditure is "constrained" within a relatively narrow human range. Consistently exercise more, spend fewer calories on other metabolic tasks and no extra calories overall. Until now, no research had directly tested these two opposing models of energy use among children living in challenging environments.

To investigate how children spend calories, Urlacher and his colleagues collected energetics data from 44 forager-horticulturalist Shuar children (ages 5 to 12) and compared them to those of industrialized children in the U.S. and the United Kingdom. The Shuar are a population of around 50,000 individuals living in the isolated Amazon region of Ecuador. Without easy access to stores and labour-saving technology, they continue to rely predominantly on a subsistence-based lifestyle of hunting, fishing, foraging and small-scale horticulture. To measure energy expenditure, the researchers used gold-standard isotope-tracking and respirometry methods, the first time that either state-of-the-art approach had been used among children in a subsistence-based population. This new information was coupled with data reflecting physical activity, immune activity, nutritional status and growth.

Results provide strong support for constraint and tradeoffs in children's energy expenditure. The study found that:
• Shuar children are approximately 25% more physically active than industrialized children.
• Shuar children have approximately 20% greater resting energy expenditure than industrialized children, to a large degree reflecting elevated immune system activity.
• Despite wide differences in lifestyle and energy allocation, the total number of calories that Shuar children spend every day is indistinguishable from that of industrialized children.

"These findings advance previous work among adults, showing that energy expenditure is also constrained during childhood," said co-author Herman Pontzer, Ph.D., associate professor of evolutionary anthropology at Duke University. Researchers argue that because tradeoffs underlying energy constraint may often limit physical growth, such constraint has implications for understanding childhood growth faltering and its associated increased risk for adult obesity and metabolic diseases such as Type 2 diabetes and hypertension. Specifically, the findings imply that a high degree of physical and immune activity may reduce energy available for growth, even when food is abundant. A key takeaway of the study is that rapid change in diet and increasing energy intake, not decreasing physical activity or infectious disease burden, may most directly underlie the chronic weight gain driving the global rise of obesity. However, "Exercise remains critically important for health and for weight management given its effects on appetite, muscle mass, cardiopulmonary function and many other factors," Urlacher said. "Our results don't suggest otherwise. Everyone should meet recommended daily physical activity levels."

The researchers recognize several ways to improve upon their study in the future, including considering a wider age range of children, comparing additional study populations and collecting longitudinal data spanning economic development and lifestyle variation within a single transitioning population. Importantly, the authors will continue to look for ways to better apply their findings to improve health among the Shuar and other populations globally.
Urlacher, a co-director of the long-term Shuar Health and Life History Project, has spent more than 25 months living with the Shuar since 2011. "I really care about the Shuar," Urlacher said. "The science is exciting, but, ultimately, we hope that our research can help to improve health among the Shuar, in the U.S. and elsewhere."

Kids twice as likely to eat healthy after watching cooking shows with healthy food

Science Daily January 3, 2020

Television programs featuring healthy foods can be a key ingredient in leading children to make healthier food choices now and into adulthood.

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Global diets are converging, with benefits and problems

Science Daily January 14, 2020

Research carried out by the University of Kent has shown that diets are changing in complex ways worldwide.

International food supply patterns are supporting healthier diets in parts of the world, but causing underweight and obesity elsewhere. They are also having important effects on environmental sustainability, with potentially worrying consequences. Dr James Bentham, Lecturer in Statistics at Kent's School of Mathematics, Statistics and Actuarial Science, led the research alongside Professor Majid Ezzati from the School of Public Health at Imperial College London and other UK and international colleagues. The researchers carried out the study analysing food supply data for 171 countries from the 1960's to 2010's.

The team discovered that South Korea, China and Taiwan have experienced the largest changes in food supply over the past five decades, with animal source foods such as meat and eggs, sugar, vegetables, seafood and oil crops all becoming a much larger proportion of diet. In contrast, in many Western countries the supply of animal source foods and sugar has declined, particularly in high-income English-speaking countries such as the UK, US, Canada and Australia. The researchers also found that many countries around the world have seen an increase in vegetable-based diets. The sub-Saharan Africa region showed the least change, with a lack of diverse food supply, and this could be an explanation for the region's malnutrition.

A new study in the Journal of Nutrition Education and Behavior, published by Elsevier, found kids who watched a child-oriented cooking show featuring healthy food were 2.7 times more likely to make a healthy food choice than those who watched a different episode of the same show featuring unhealthy food. Researchers asked 125 10- to 12-year-olds, with parental consent, at five schools in the Netherlands to watch 10 minutes of a Dutch public television cooking program designed for children, and then offered them a snack as a reward for participating. Children who watched the healthy program were far more likely to choose one of the healthy snack options -- an apple or a few pieces of cucumber -- than one of the unhealthy options -- a handful of chips or a handful of salted mini-pretzels.

"The findings from this study indicate cooking programs can be a promising tool for promoting positive changes in children's food-related preferences, attitudes, and behaviours," said lead author Frans Folkvord, PhD, of Tilburg University, Tilburg, Netherlands. This study was conducted at the children's schools, which could represent a promising alternative for children learning healthy eating behaviours. Prior research has found youth are more likely to eat nutrient-rich foods including fruits and vegetables if they were involved in preparing the dish, but modern reliance on ready-prepared foods and a lack of modelling by parents in preparing fresh foods have led to a drop in cooking skills among kids. "Providing nutritional education in school environments instead may have an important positive influence on the knowledge, attitudes, skills, and behaviours of children," Dr. Folkvord said.

This study indicates the visual prominence of healthier options in both food choice and portion size on TV cooking programs leads young viewers to crave those healthier choices then act on those cravings. The effect that exposure to healthier options has on children is strongly influenced by personality traits. For example, children who don't like new foods are less likely to show a stronger desire for healthier choices after watching a TV program featuring healthier foods than a child who does enjoy trying new foods. As they grow older, though, they start to feel more responsible for their eating habits and can fall back on information they learned as children. Researchers believe this may indicate watching programs with healthier options can still have a positive impact on children's behaviour, even if it is delayed by age. "Schools represent the most effective and efficient way to reach a large section of an important target population, which includes children as well as school staff and the wider community," Dr. Folkvord commented. "Positive peer and teacher modelling can encourage students to try new foods for which they exhibited distaste previously."

Poor dietary habits during childhood and adolescence have multiple negative effects on several health and wellness indicators, including achievement and maintenance of healthy weights, growth and development patterns, and dental health. "The likelihood of consuming fruits and vegetables among youth and adults is strongly related to knowing how to prepare most fruits and vegetables. Increased cooking skills among children can positively influence their consumption of fruit and vegetables in a manner that will persist into adulthood," Dr. Folkvord added.

The declines in diets based on animal source foods and sugar and corresponding increases in vegetable availability indicate a possible trend towards more balanced and healthier foods in some parts of the world. However, in South Korea, China and Taiwan in particular, the increase in animal source and sugar availability has occurred at the same time as a dramatic rise in obesity, and also suggests that changes in diet may be having a substantial negative effect on the environment.

Dr Bentham said: 'There are clear shifts in global food supply, and these trends may be responsible for strong improvements in nutrition in some parts of the world. However, obesity remains a long-term concern, and we hope that our research will open doors to analysis of the health impacts of global diet patterns. Equally, we must also consider carefully the environmental impacts of these trends.'
Professor Ezzati added: 'Advances in science and technology, together with growing incomes, have allowed many nations to have access to a diversity of foods. We must harness these advances and set in place policies that provide healthier foods for people everywhere, especially those who can currently least afford them.'

Drinking 1% rather than 2% milk accounts for 4.5 years of less aging in adults
High-fat milk consumption is connected to significantly shorter telomeres

Science Daily January 15, 2020

A new study shows drinking low-fat milk -- both non-fat and 1% milk -- is significantly associated with less aging in adults.


Image © iStock.com/ GoodLifeStudio

Research on 5,834 U.S. adults by Brigham Young University exercise science professor Larry Tucker, Ph.D., found people who drink low-fat milk experience several years less biological aging than those who drink high-fat (2% and whole) milk. "It was surprising how strong the difference was," Tucker said. "If you're going to drink high-fat milk, you should be aware that doing so is predictive of or related to some significant consequences." Tucker investigated the relationship between telomere length and both milk intake frequency (daily drinkers vs. weekly drinkers or less) and milk fat content consumed (whole vs. 2% vs. 1% vs. skim). Telomeres are the nucleotide end caps of human chromosomes. They act like a biological clock and they're extremely correlated with age; each time a cell replicates, humans lose a tiny bit of the end caps. Therefore, the older people get, the shorter their telomeres.

And, apparently, the more high-fat milk people drink, the shorter their telomeres are, according to the new BYU study, published in Oxidative Medicine and Cellular Longevity. The study revealed that for every 1% increase in milk fat consumed (drinking 2% vs. 1% milk), telomeres were 69 base pairs shorter in the adults studied, which translated into more than four years in additional biological aging. When Tucker analyzed the extremes of milk drinkers, adults who consumed whole milk had telomeres that were a striking 145 base pairs shorter than non-fat milk drinkers.

Nearly half of the people in the study consumed milk daily and another quarter consumed milk at least weekly. Just under a third of the adults reported consuming full-fat (whole) milk and another 30 percent reported drinking 2% milk. Meanwhile, 10% consumed 1% milk and another 17% drank non fat milk. About 13% did not drink any cow milk. "Milk is probably the most controversial food in our country," Tucker said. "If someone asked me to put together a presentation on the value of drinking milk, I could put together a 1-hour presentation that would knock your socks off. You'd think, 'Whoa, everybody should be drinking more milk.' If someone said do the opposite, I could also do that. At the very least, the findings of this study are definitely worth pondering. Maybe there's something here that requires a little more attention."

Somewhat surprisingly, he also found that milk abstainers had shorter telomeres than adults who consumed low-fat milk. Tucker said the study findings provide support for the current Dietary Guidelines for Americans (2015-2020), which encourage adults to consume low-fat milk, both non fat and 1% milk, and not high-fat milk, as part of a healthy diet. "It's not a bad thing to drink milk," Tucker said. "You should just be more aware of what type of milk you are drinking."

Study links dietary choline to reduced dementia risk

IFTNEXT September 17, 2019

Intake of dietary phosphatidyl choline was linked to a reduced risk of dementia in a new study by researchers at the University of Eastern Finland.


Image © iStock.com/ Jodi Jacobson

Eggs and meat were the main sources of dietary choline, which was also associated with improved cognitive performance in the study, the results of which were published in the American Journal of Clinical Nutrition. An essential nutrient, choline is needed for the formation of acetylcholine, which is a neurotransmitter. Earlier studies have linked choline intake with cognitive processing. In the recent study, men with the highest intake of dietary phosphatidyl choline had a 28% lower risk of dementia than men with the lowest intake. High-intake study subjects also performed well in tests designed to measure memory and linguistic abilities.

Data used in the study came from the Kuopio Ischaemic Heart Disease Risk Factor Study, which tracked the health, diet, and lifestyle behaviours of 2,500 Finnish men aged between 42 and 60. The researchers combined data from this study (which was undertaken in the 1980s) with hospital, medication reimbursement, and cause of death records gleaned after an average follow-up period of 22 years. Four years after the study onset, about 500 men completed tests related to memory and cognitive processing. In conducting their analyses, the researchers took lifestyle and other nutrition factors into consideration as well as the presence of the APOE4 gene, which is linked to a predisposition for Alzheimer's disease.

The researchers are hopeful that their study will contribute to prevention of dementia. "However, this is just one observational study, and we need further research before any definitive conclusions can be drawn," says researcher Maija Ylilauri, a doctoral student at the University of Eastern Finland. More than 50 million people worldwide suffer from dementia, with nearly 10 million new cases diagnosed every year, according to the World Health Organization.

Remodelling the gut microbiome

IFTNEXT November 5, 2019

Research suggests that the gut microbiome is incredibly responsive to dietary intake.

In fact, gut microbiota have a symbiotic relationship with the human body: The microbiota survive on the foods that humans consume, feasting on the prebiotic fibres that humans could not digest without them. Recently, scientists have determined a way to change the makeup of gut microbes by remodelling the microbiome without the use of prebiotics or probiotics.

Prebiotics are fibre-rich foods that travel beyond the stomach and into the colon, where the majority of gut microbiota live. Such foods provide the fuel that good gut microbes need to flourish and function properly. And probiotics are live microorganisms that, when administered, populate the colon with good microbes that benefit the host. Most efforts at improving the makeup of gut microbiota involve the use of prebiotics and probiotics. However, researchers at the Scripps Research Institute have devised a new way to improve the composition of gut microbiota: remodelling the microbiome.

M. Reza Ghadiri and his research team at Scripps Research Institute have developed a class of molecules called self-assembling cyclic D, L-α-peptides. Ghadiri and his team programmed the peptides to selectively modulate the growth of certain bacteria species in the gut. The researchers tested the peptide in mouse models to determine whether they would be effective in remodelling the guts of mice eating a poor diet to resemble the guts of mice eating a low-fat nutritious diet. Using the peptides, the team was successful in remodelling the gut microbiome of poor-diet mice to resemble the gut microbiome of mice consuming nutritious diets. The peptides appeared to increase the numbers of beneficial gut microbes and suppress the levels of molecules that increase inflammation and rebalance levels of metabolites associated with disease.

Elderly diet in Japan: High fish, meat consumption could decrease risk of anaemia – Study

By Pearly Neo 29-Oct-2019 – Food Navigator Asia

A Japanese study has revealed that including high amounts of fish and meat in the diet of elderly consumers could lead to a significantly decreased risk of suffering from anaemia.

Anaemia is a disease which mainly presents as an abnormally low level of red blood cells or haemoglobin, which is necessary to transport oxygen throughout the body.

"Anaemia is not considered a natural consequence of the aging process," said the study authors. "In the elderly, it may be the result of nutritional deficiencies of key nutrients, such as iron, folate, and vitamin B-12.Animal products, particularly fish and meat, are excellent sources of vitamin B-and iron (heme iron), which is crucial for haemoglobin production. The current study in Japanese elderly suggests that higher animal protein, specifically the high protein content of fish, may be associated with a lower prevalence of anaemia."

The study was conducted on over 6,000 subjects over the age of 65 in Japan across nine years, using data from the National Health and Nutritional Survey in Japan (NHNS). The subjects' dietary habits and blood were analysed, and anaemia was defined according to the World Health Organisation definition as haemoglobin concentrations of less than 13.0 g/dL in males and 12.0 g/dL in females."Both anaemic male and female subjects tended to significantly consume less fish compared with non-anaemic subjects, [and the same] was found for meat consumption in males" stated the study. In males, this was a median value of 86g of fish per day in anaemics versus 100g per day in non- anaemics, and 38.6g of meat per day in anaemics versus 49.8g per day in non-anaemics. Anaemic females consumed73.5g of fish per day versus the 83.5g consumed by non-anaemics, but both groups took 30g of meat a day."This study indicated that fish intake was associated with lower anaemia risk, independent of dietary energy intake and major lifestyle confounders in Japanese elderly," said the authors.

Two possible explanations offered were that animal protein can help with the reduction of skeletal muscle mass (previously suggested to heighten anaemia risk) loss, and with supporting the formation of red blood cells."Higher animal protein, specifically the high protein content of fish intake appeared to be related to preservation of skeletal muscle mass," said the study. "Sufficient animal protein intake may also have a positive effect on red blood cell formation and reduces the risk of malnutrition and anaemia." Other tests conducted on individual nutrients such as vitamin B12, iron and folate did not reveal significant associations with anaemia, leaving the fish and meat consumption in the subjects' diets as the main association."[The] lower risk of anaemia is likely explained [by] the intake of animal protein, specifically the high protein content of fish."

Different types of anaemia

In addition, the study looked at both microcytic anaemia, which occurs in the case of iron deficiency, and macrocytic anaemia, which occurs in vitamin B12 or folate deficiency."Microcytic and macrocytic anaemia [rates] did not differ between the anaemic and non-anaemic group," said the authors. "Fish contains significant amounts of animal protein [but not so much of] these anaemia-related nutrients. Therefore, it is possible that not vitamins but animal protein intake may be related to lower anaemia risk, and animal protein intakes are helpful in preventing anaemia in elderly populations."

Meat could have a more significant role

That said, the authors stated that meat could actually play a larger role than observed in this study, as it is consumed far less in Japan as compared to fish."In Western countries, the major sources of animal products are meat and poultry, whereas Asian populations, particularly the Japanese elderly, tend to consume more fish but less meat," they said."Meat intake was much lower compared with that in Western countries; therefore, meat intake was not significantly associated with lower anaemia risk."Citing a previous Brazillian study conducted in 2013, they said that meat had been found to be the more significant deterrent of anaemia, whereas a 2011 United States study reported that women with anaemia had consumed less red meat.

Flavonoid-rich diet and beneficial bacteria attributed to low colorectal cancer in Indian population – Gut microbiome study

By Guan Yu Lim 12-Nov-2019 – Food Navigator Asia

Researchers from India have discovered that a diet high in flavonoids may contribute to the low prevalence of colorectal cancer (CRC) in the Indian population.

At our Probiotia Asia event held in Singapore, Dr. Vineet Sharma from the Indian Institute of Science Education and Research (IISER) said CRCwas the third most common cancer and second leading cause of cancer death globally, "but surprisingly lower in India, (which is) attributed to high flavonoid consumption ."Despite this, he stressed that CRC risk was on the rise in India, due to the growing adoption of a Western lifestyle and lack of physical activity. Acting on the lack of early detection techniques for CRC, Sharma and his team conducted India's first CRC microbiome and metabolome study.


Image © iStock.com/szefei

Study findings

The study recruited both CRC patients (early to late stages of cancer) and healthy individuals to compare a diseased gut meta genome with a healthy one. The study found an association of bacteroides and other bacterial taxa in the faeces of the CRC group. The researchers then constructed a gene catalogue and metabolome for colorectal cancer and found 33 gene markers and 20 taxonomic markers, which could be used to diagnose CRC. There was also microbiome dysbiosis in CRC patients. Dysbiosis is the disruption of the normal microbiome content leading to a reduction in pathways related to the biosynthesis of six essential amino acids (Leucine, Isoleucine, Lysine, Phenylalanine, Tryptophan and Valine) out of the nine essential amino acids the body requires. From this, researchers said these cohort-specific biomarkers could be used in non-invasive diagnosis of CRC, from faecal samples alone. Sharma said: "When we use these markers, it can clearly segregate the CRC patients and healthy individuals."

Flavonoid degradation

According to him, the typical Indian diet is rich in flavonoids, which can be found in tea, coffee, terminalia bark, fenugreek seeds, mustard seeds, cinnamon, red chili powder, cloves, and turmeric.

He explained that flavonoids have a role to play in the prevention of cancer, CVD, type 2 diabetes and other diseases. But, the presence of certain gut bacteria can degrade these flavonoids by cleaving the C-ring of the flavonoid molecules. For instance, in the group with CRC, bacteria such as veillonella parvula, bacteroides fragilis were present, where other research has found its possible role in inducing epithelial cell changes and modulate the mucosal immune responses, resulting in CRC progression. However, in the group without CRC earlier, faecal samples showed higher levels of prevotella bacteria compared to the CRC. The abundance of prevatolla is attributed to a diet higher in plant materials and carbohydrate. We reported this earlier when researchers from IISER conducted the largest gut microbiome study of the Indian population. The degradation of beneficial flavonoids thus play an important role in cancer progression in the Indian cohort.

Indian-specific probiotics

Sharma said the Indian gut microbiome was uniquely different from other parts in the world due to its lifestyle, food habits, and a large population of vegetarians. He said these findings provide motivation to develop Indian-specific probiotics, which can therapeutically target intestinal microbiome by promoting beneficial bacteria and inhibiting potentially pathogenic species. He also added that most probiotic bacteria were imported from other countries, with the top companies in the Indian market being Amul, Nestle, Mother Dairy and Yakult. He reiterated that the Indian population needed a probiotic that was specially designed for the Indian gut microbiome.

Meat and morbidity: Why are Indian vegetarians more likely to be obese than their omnivorous counterparts?

By Cheryl Tay 04-Feb-2019 – NutraIngredients Asia

Vegetarian diets in India are more often linked to a higher rate of morbid obesity than non-vegetarian diets, according to a cohort study published in The Journal of Metabolic Surgery and Allied Care.

India has the world's largest vegetarian population, with 40% of the country adhering to vegetarian diets. While many believe a vegetarian diet is generally healthier than a non-vegetarian diet, the reverse has been observed when it comes to morbid obesity. The main reason for this is a 'nutrition transition', which involves whole plant foods being replaced by processed and fried foods, as well as refined carbohydrates.

Eating your greens…and a whole lot more

Based on this, bariatric surgeon Sanjay Borude conducted a retrospective cohort study — the first to evaluate morbid obesity culminating in bariatric surgery — to assess the association between a vegetarian diet and the incidence of morbid obesity that would necessitate bariatric surgery in Indians. He analysed the records of 235 Indian patients who had undergone bariatric surgery at his centre for morbid obesity from 2015 to 2017, noting the annual difference between the number of vegetarians and non-vegetarians who had been scheduled for surgery within that period.

While the difference between the number of vegetarians and non-vegetarians who underwent bariatric surgery in 2015 and 2017 was insignificant, there tended to be more vegetarians in both cases. In 2016, however, there was a significantly higher number of vegetarians than non-vegetarians who underwent bariatric surgery at the centre.

The study also analysed gender-based differences between the vegetarian and non-vegetarian patients, and found that in 2015 and 2016, there were significantly more female vegetarian patients than female non-vegetarian patients who underwent the surgery. When it came to the male patients, no significant difference was found in the number of vegetarian and non-vegetarian patients throughout the entire study period.

Population paradox

In an earlier study, the phenomenon of a disproportionate rise in metabolic morbidities in South Asia compared to other regions, despite the prevalence of vegetarianism, was termed the 'South Asian Paradox'. The author cited previous studies conducted in Western countries, which recommended vegetarian diets for weight management and reported that vegetarians had a "lower propensity of co-morbidities like heart disease, high blood pressure, diabetes and obesity" , in order to juxtapose Western vegetarianism against South Asian /Indian vegetarianism.

He stated: "Vegetarianism in India is unique in many ways. It is usually practised lifelong and spans across multiple generations. Hence, the author believes that the analysis of a vegetarian diet with metabolic morbidity in India may yield different findings than similar studies conducted in the West."The findings show that vegetarian status did not confer any protective effect on the propensity to be morbidly obese and undergo bariatric surgery…contrary to the expected association between vegetarianism and reduced prevalence of morbid obesity as observed in many Western studies."

He further explained that unlike vegans or even vegetarians in the West, Indian vegetarians consume significant amounts of butter, ghee and honey. At the same time, since vegetarianism in India is usually not practised for political or health-related reasons —but rather, for religious or cultural reasons — Indian vegetarians may consume more unhealthy snacks, eat more frequently, dine at fast food outlets more often, and consume more fried and processed food than non-vegetarian Indians and Western vegetarians.

Additionally, biological differences between Western and Indian vegetarians may also have a part to play in the vast differences in obesity rates among both demographics. Lastly, non-vegetarians in India do not usually consume red or processed meat. As such, the potential benefits of reducing or eliminating red and / or processed meat intake could mean that non-vegetarians in India are usually healthier than vegetarians, who tend to consume more refined and processed foods. However, the author acknowledged that "such divergent findings seem difficult to fully explain in a single-centre retrospective analysis".

Vegetarian variance

The study predicted that with more people adopting vegetarianism and a large number of Indians continuing to subsist on vegetarian diets for religious, economic and cultural reasons, bariatric surgeons would be likely to encounter more obese vegetarian patients. It further said that the idea of vegetarian diets being inherently healthier than non-vegetarian diets was a myth, and that its findings should be used by bariatric surgeons and healthcare policymakers to discourage the consumption of refined and processed foods while promoting more nutritious vegetarian alternatives. In conclusion, the author wrote: "(The study) provides an opportunity to address the national epidemic of obesity by restraining the marketing and consumption of unhealthy vegetarian foods, especially to a vulnerable population like adolescents.

"Bariatric surgeons must target customised nutrition intervention across different stages of life, so that healthy eating habits are inculcated at an early age. Further, this needs to be emphasised via public health and nutrition interventions at the government, mass media and food industry levels. "There is an immense potential to further sub-investigate food choices within a dietary pattern that can make or mar the health benefits associated with the vegetarian practice. Plans for future research include enhancing data collection to include the variants of vegetarian diets, and taking a closer look at their macronutrient and micronutrient composition. An understanding of these predictors can help target public health messages."

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New Zealand flower extract helps curb hunger during intermittent fasting: Study

By Danielle Masterson 06-Dec-2019 – NutraIngredients Asia

Intermittent fasting has gained traction in the United States as a way to lose weight. Amarasate, a weight-management extract, is being touted as an effective anorexigenic agent for such a diet.

About half of American adults have at least one diet-related chronic disease like heart disease, high blood pressure, type 2 diabetes, obesity, and certain cancers, according to the 2015–2020 Dietary Guidelines for Americans report. Modern excesses in the Western diet have resulted in increased rates of these types of diet-related conditions. In addition to diseases, a poor diet can wreak havoc on the microbiome. Research suggests that eating a high fat, high-sugar diet kills essential bacteria in the gut, throwing it off balance and causing the immune system to malfunction. Dietary interventions are a common initial remedy, which typically include modifying diet composition and imposing food choice restrictions. However, restrictive diets often result in poor compliance.

Watching the clock

Intermittent fasting (IF) is an unconventional diet that is emerging as an alternative to other types of diets.

It does not require changes in food choice or diet composition. Instead, IF relies on time-restricted eating, reduction in daily caloric intake or complete water-only fasting days. Fasting is believed to support a healthy metabolism, heart health and brain health, as well as healthy blood sugar levels, which could reduce the risk of type 2 diabetes. Researchers in New Zealand wanted to further the success of the diet trend by finding a way to make it easier to follow.

Despite such health benefits, increased hunger near the end of the fasting period can make it harder to stick to, and reduce the desire to repeat it," said Dr. Edward Walker, lead author of the study. Scientists turned to extract Calocurb, a New Zealand-grown bitter hop flower extract that aims to manage food cravings and portion control. The extract is trademarked by brand name Amarasate and owned by government-funded Plant & Food Research (PFR). When specific cells in the small intestine sense certain bitter compounds in food, a hormonal response is triggered that signals the brain to stop eating. Amarasate works by triggering this "bitter brake."

Study details

For the study, 30 adult men were required to fast for 24 hours on the same day of the week for three subsequent weeks. The participants were given a high or low dose of Amarasate, or a placebo. Both groups given Amarasate reported a statistically significant (>10%) reduction in hunger. Nor did they experience the same lunchtime hunger the placebo group did 18 hours into their fast.

The study by eight Plant & Food Research scientists was then peer-reviewed and published in the international scientific journal Nutrients. Dr. Walker said the findings suggest Amarasate may be used for reducing hunger during intermittent fasting and show that bitter compounds may regulate appetite independently of meal timing. "This study determined the efficacy of a bitter extract to regulate appetite towards the end of 24 hour period of a water-only fasting and showed that the targeted delivery of Amarasate can reduce hunger and increase fullness during the late stages of the fast," said Dr Walker.

From the bush to the states

Amarasate was developed by Plant & Food Research, New Zealand's largest government research institute, before being commercialized by nutrition and e-commerce company, Calocurb Ltd, in 2018.
The product contains three ingredients: hops flower, rosemary, and canola seed oil. The ingredients are encapsulated in Capsugel's patented Licaps capsule, which helps with its targeted release mechanism. Although the product was developed in New Zealand, the company's CEO told NutraIngredients-USA in 2018 that "it was specifically developed for the US market." The product hit the US market in 2018 and is currently being sold online under the name Calocurb. A 30-day supply of 45 capsules costs $49.95.

Probiotic from pickled cabbage improves aerobic endurance in non-athletes: Taiwan study

By Guan Yu Lim 10-Dec-2019 – NutraIngredients Asia

A probiotic isolated from Taiwanese pickled cabbage, Lactobacillus plantarum TWK10 (TWK10), has been demonstrated to improve exercise performance and fatigue-associated features in non-athletes.

The study also found that at higher doses of TWK10 administered, body fat decreased and muscle mass increased. Probiotics have been studied extensively for health promotion, but clinical validation on its effects on exercise physiology is sparse, and mostly studied on athletes. Researchers from Taiwan had initially discovered TWK10 effects on exercise physiology in mice which reported a 85% increase in endurance performance, and attempted to validate these findings in human clinical trials. The findings were published in the journal Nutrients.

Study design

Taiwanese firm, Synbio Tech, cultivated the probiotic TWK10 used in this study. The firm's general manager, Ken-Tien Hsu told NutraIngredients : "In the beginning of screening strains, we selected lots of fermented vegetable from different countries and tested their beta-glucosidase ," before they settled on Taiwanese pickled cabbage. The double-blind placebo-controlled study involved 54 healthy adult participants (27 males, 27 females) between 20 to 30 years. Participants were not professional athletes. They were randomly allocated to three groups (n=18 each): placebo, low dose 1X TWK10 (3 X 10 CFU), and high dose 3 X TWK10 (9 X 10 CFU), for six weeks.

Hsu explained capsules were consumed three times daily. The treadmill method was used to evaluate exercise performance before and after administration by VO max adjustment. The researchers measured both physiological adaptation which was set at 60% VO2max, and exhaustive endurance at 85% Vo2max.


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To understand physiological adaptation, fatigue-associated indices such as lactic acid and blood glucose, were continuously monitored during the exercise and recovery period. Body composition data was measured using a bioelectrical impedance analyser, before and after administration.

Endurance performance and fatigue
The findings reported that exhaustion time for both TWK10 groups, low dose ($p=0.020$) and high dose ($p<0.001$) significantly increased after six weeks of administration, compared to the placebo at 85% VO. Researchers also found that with increasing dosage, the exhaustion time was significantly higher ($p=0.0336$), indicating that TWK10 could improve the endurance performance in a dose-dependent manner. In this study, six weeks of TWK10 administration could improve exercise performance by increasing aerobic endurance capacity by 20.7% in the low-dose group, and 40.2% in the high-dose group.

Physiological adaption
In both TWK10 groups, lactate production during exercise and recovery were significantly lower than the placebo group. This effect was found to be even stronger in the recovery phase. Lactate is an exercise-associated fatigue parameter, and is produced from glycolysis reaction. During exercise, lactate is mainly produced in type II (fast twitch) muscle fibres, which use large amounts of glucose for energy, and it is cleared mainly by type I (slow twitch) muscle fibres. Researchers said the reduced serum lactate in TWK10 groups may be due to faster clearance process by type 1 muscle fibres. In this study, serum glucose levels was significantly higher during exercise in TWK10 groups, and restored to levels comparable to the placebo control during the recovery phase.

Serum glucose is an important energy source for exercise, and the rate of serum glucose uptake decreases when serum-free fatty acid or muscle glycogen concentrations are very high. “This may be a result from one or a combination of the following factors: Less glucose uptake by the muscle, less energy supplied through glucose, higher glycogenolysis, and higher gluconeogenesis during exercise,” researchers commented. In a mouse study they conducted (unpublished), TWK-10 administration increased type I fibres by 47%, resulting in more energy supplied from fatty acid oxidation instead of glucose. Plasma lactate levels were also down by 27.88%.

Body composition
Researchers found that before and after administration, the TWK10-treated groups showed a fat mass decrease compared to the placebo treatment. The results demonstrated that low doses and high doses of TWK10 could significantly increase muscle mass by 1.5 and 4.8 folds respectively, compared to the placebo group. Similar to the same mice study, TWK10-treated mice had a 10% increase in muscle mass. “We think that TWK10 administration may increase weight management effects due to a synergistic effect on short chain fatty acid production and microbiota re-configuration,” they said. Hsu added: “These results suggest that six weeks TWK10 supplementation of at least 30 billion CFU daily may change gut microbiota which contribute to the host metabolic phenotype to affect physical activities in terms of exercise performance and body composition.”

Future works
The researchers suggested it might be worth looking into the gut microbiota in healthy non-athletes and how TWK10 exerts its effects on exercise performance. According to Hsu: “In animal and human studies on TWK10 administration, we found out that TWK10 can change energy utilization and metabolism affected by gut microbiota to enhance exercise performance and improve body composition, and therefore, TWK10 can be applied on the supplementation of sport nutrition, energy metabolism and muscle enhancement . The possible mechanism by which TWK10 may change gut microbiota and increase energy harvesting, is an area that we are excited to find out in the future.”

While the 40% improvement in exercise performance for the high-dose group appeared reasonable and similar to previous human trials, researchers recommended that more research is needed to confirm the effectiveness and mechanism of probiotic supplementation for improving athletic performance. Besides improve exercise performance, researchers said TWK10 managed to influence fat and muscle changes in a healthy young adult population, without any specific exercise interventions, “(so) we believe L. plantarum TWK10 could be applied to an obese population for further validation of anti-obesity effects in future studies.”

Two apples a day may lower cholesterol levels, study concludes

By Will Chu 17-Dec-2019 – NutraIngredients Asia

The polyphenols and fibre contained within apples appear to have a mild cholesterol-lowering effect, according to a UK-based research team, which also point to the fruit’s vascular benefits.

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Along with Italian colleagues, the research team believe the consumption of two apples a day in the diet can improve CVD risk factors and reducing total and low-density lipoprotein (LDL) cholesterol. "Our findings show clear cause and effect between two Renetta Canada apples into normal diets and improved CVD risk factors, by reducing total cholesterol (TC),

LDL cholesterol, and increasing microvascular vasodilation, in healthy subjects with mildly raised serum cholesterol concentrations," the team says. Dose- and structure-response studies are necessary to explore the potential mechanisms, which are likely to involve bile acid (BA) signalling and/or small phenolic acids derived from apple polyphenols, both linked to gut microbiota metabolism."

The randomised, controlled, crossover trial, which featured in The American Journal of Clinical Nutrition, received a mixed response from fellow academics, who point to the study's short duration and size as two drawbacks to the research.

Results not definitive

"The trial, whilst well designed, was relatively small in size and short in duration and measured many things, so I would not say these results are definitive," says Naveed Sattar, professor of metabolic medicine at the University of Glasgow. "Larger, longer studies are required to confirm and should be done.

The results of this study are of interest – any simple dietary changes that help lower cholesterol are to be welcomed, even if the reduction is relatively modest at around 4%, which is not sufficient to treat high cholesterol in many people at elevated risk of heart disease."

The study looks at apples as a source of polyphenols (typically 110 milligrams per 100 grams (mg/100 g)) and fibre (typically 2–3 grams per 100 grams (g/100 g)), which may be responsible for the potential health effects. The polyphenol proanthocyanidin (PA) and flavanol monomers, contained within apples, have been shown to lower serum cholesterol, raise HDL cholesterol, inhibit LDL oxidation, activate endothelial nitric oxide synthase, prevent platelet aggregation, and block inflammatory responses in atherosclerosis.

Meanwhile pectin, the main soluble fibre found in apples, is reported to affect transit time, gastric emptying, and nutrient absorption, affecting lipid and glucose metabolism. Pectin also appears to modulate the gut microbiota, a key determinant of bile acid (BA) chemical structure and thus signalling potential.

Study details

The trial took healthy mildly hypercholesterolemic volunteers (23 women, 17 men), with a mean body mass index (BMI) of 25.3 kilograms per metre squared (kg/m2) and a mean age of 51. They were asked to consume two Renetta Canada apples per day or a sugar- and energy-matched apple control beverage (CB) for eight weeks each, separated by a 4-wk washout period. Fasted blood was collected before and after each treatment. Serum lipids, glucose, insulin, bile acids, and endothelial and inflammation biomarkers were measured as were microvascular reactivity, and arterial stiffness.

The team found whole apple (WA) consumption decreased TC levels (WA: 5.89 mmol/L; CB: 6.11 mmol/L), LDL cholesterol levels (WA: 3.72 mmol/L; CB: 3.86 mmol/L) and triacylglycerol levels (WA: 1.17 mmol/L; CB: 1.30 mmol/L). The response to endothelium-dependent microvascular vasodilation was greater after the apples [WA: 853 perfusion units (PU), CB: 760 PU] than after the CB, with the team also finding the apples having no effect on blood pressure or other CVD markers. "A total of 990 mg polyphenols per day was provided by two Renetta Canada apples in our study, which supports the hypothesis that polyphenols play a role in cholesterol lowering," says the study.

"The daily intake of soluble fibre in the apple group in our study was 3.7 g. This amount might not be sufficient alone to lower TC and a major role of polyphenols, especially PAs, and/or a synergetic effect between apple polyphenols and pectin/soluble fibre cannot be excluded. Improvement in vascular function has been mainly shown with a high daily dose of flavonoid monomers," the team adds. The lower daily intakes of flavanol monomers in our study suggest a potential role for the apple PAs.

Swap statins for apples?

Prof Tim Chico, professor of cardiovascular medicine and honorary consultant cardiologist at the University of Sheffield, was restrained with his thoughts adding, "This study did show that eating two apples a day led to a slight reduction in cholesterol compared with an apple drink.

The effect on cholesterol was very small compared with drug therapy with statins, and so it is not clear whether this effect would lead to a decrease in heart disease or stroke. However, the study was over a short period and any benefits are likely to accumulate over a lifetime of a healthy diet," Dr Chico adds.

"So, can people who need to take statins swap them for apples? No, not on the evidence of this study. "Should all people (whether on statins or not) eat more vegetables and fruit if they want to reduce their risk of heart disease? Emphatically yes, alongside taking more regular physical activity, not smoking, and maintaining a healthy weight."

& FOOD SCIENCE INDUSTRY NEWS

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Grab-and-go keto: Keto and Co releases first RTD format for its "meal in a bottle" product

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Keto and Co, maker of the Sated brand of ketogenic or "keto" shake mixes, has released a grab-and-go, ready-to-drink format of its product.

Sated Ready-to-Drink (RTD) are shakes produced to fill a key gap in the exploding market for convenient low-carb, keto foods. With this launch, Sated markets its brand as the first nutritionally complete, keto meal-in-a-bottle to hit the market.

"The high level trend we play into is convenient healthy eating. Our products are keto (low in net carbs), high in omega 3s, high in prebiotic fibre and low in sugar. Driving this trend are consumers who want their food to not just taste good, but also help them lead healthier lives," Ted Tieken, CEO of Keto and Co tells NutritionInsight.

According to proprietary research conducted by Keto and Co, there are 15 to 25 million people in the US currently following a keto diet, and they cite a lack of quick, convenient keto food options as their top challenge. Sated Ready-to-Drink targets this need by making nutritious, satisfying keto meals "as easy as twisting a cap."

Sated's mix-it-yourself version has a been a bestselling keto shake since 2014, and customers have been consistently asking for a RTD option. In August 2018, the company launched a Kickstarter campaign to make Sated RTD a reality. That campaign raised over US$200,000 during prelaunch, making it the fourth largest food product Kickstarter to date.

"The anticipation we've seen for Sated RTD has been incredible," says Tieken. "We're thrilled to be bringing it to our backers, our customers, and to a national market that is growing ever more carb and health conscious."

Rise of ketogenic

The keto diet has risen in popularity among consumers over the last year, leading to a proliferation of related NPD. In related launches, bread company Unbun Foods announced its aims to disrupt the bakery category with its grain-free offerings last November. Unbun's products are marketed as offering a healthy, low-carb alternative to lettuce buns or traditional "chemical-laden" bread.

Earlier this year, a high-fat, low-carbohydrate diet – similar to a keto or Atkins diet – was found to potentially improve brain function and memory in older adults. Separate research also found that a keto diet is the optimal way to combat obesity in the military and promote soldiers' fitness levels.

The keto diet was also found to enhance production from airway cells that can effectively trap the influenza virus, according to findings from Yale University study issued in November. This research found that influenza-infected mice fed on ketogenic food had a higher survival rate than mice fed food high in carbohydrates.

By Benjamin Ferrer

Ringing in a new era of technology in nutrition: Digital breakthroughs to kickstart healthcare revolution


Image iStock.com/jxfzsy

07 Jan 2020 Nutrition Insight

The last few years have seen the proliferation of technology in the nutrition space, with the new decade primed to witness a digital healthcare revolution.

Breakthroughs such as artificial intelligence (AI) and increased access to data make us more in control of ourselves than ever before. US-based healthcare company Abbott flags key developments in this space including personalized medicine, electronic health records and implanted medical devices. This new technology has taken the form of everything from ingestible gas-sensing capsules that monitors gases produced within the gut in real-time, to in-store genetic tests to encourage shoppers to make healthier and more informed choices.

"Nowadays, we can track everything from our daily steps and hours we sleep to the nutrition we take in. Consumers love having more and more health information at their fingertips, which helps them feel more in control and informed about their health. However, it's important to consider where you're getting your information from and to always stay in touch with your healthcare provider for an overall analysis of your health," Refaat Hegazi, Global Medical Director at Abbott, tells NutritionInsight.

Abbott points to healthcare access via remote monitoring as one major change. Virtual technologies can help remotely connect patients in rural areas with providers. One form of this technology takes the form of telemedicine, which lets people speak with doctors through a smartphone or other device. This is being used in Amazon Care, which launched in pilot form late last year. It is a healthcare service offering Amazon employees virtual and in-person care, including through video calls.

However, Abbott notes that the digital nature of future healthcare does mean that it will not be personal. Instead, this increased access to data and technology is giving doctors more time to interact with consumers one-on-one. Additionally, consumers are being given the tools to be able to monitor themselves in real-time, allowing for the level of personalization increasingly sought.

Last November, a collaboration between microbial sciences company Seed Health and Atmo Biosciences – a digital health company – saw an ingestible gas-sensing capsule measure the impact of probiotics in real-time. Meanwhile, Irish start-up FoodMarble produces a portable breath test and app used to measure and track digestive health. The company has partnered with Carbiotix to examine whether breath hydrogen can be used as a non-invasive, real-time measure of changes in microbiome composition.

Notably, shoppers at supermarket chain Waitrose and department store John Lewis in the UK can now take a quick, on-site cheek swab to generate a personalized DNA report revealing key nutrition-related health traits. DnaNudge's pop-up services are set to inspire shoppers to make healthy choices based on their unique genetic makeup.
AI is also being used in a major way to ensure that consumers are receiving the best care possible.

Earlier this week, L'Oréal unveiled Perso, an AI-powered, at-home system marketed as offering optimized beauty personalization.

Meanwhile, Mayo Clinic and Viome are collaborating to explore the potential of the latter company's AI-driven personalized diets in helping to manage disorders such as sleep apnea and obesity. Even in the pet nutrition sector, AI is being harnessed by Stonehaven Incubate and Nuritas to discover and develop advanced animal health solutions. The initial focus of the partnership will be on exploring animal feed ingredients. However, regulation and safeguarding must keep pace with these new tools as opportunity for misuse also grows.

In September, the US Food and Drug Administration (FDA) issued guidance on how it will regulate "novel, swiftly evolving" digital health tools, such as mobile health software and products that use AI. The FDA highlights that its approach "must foster, not inhibit, innovation." It remains to be seen just how far technology can go in revolutionizing the nutrition sector, but the breakthroughs of the previous year alone point to major advances to come.
By Katherine Durrell

Welcoming the decade with NPD: Protein, sugar-reduction and plant-based trends star

08 Jan 2020 Nutrition Insight

With the year only a week old, its strong start in NPD releases could provide an initial glimpse of what the new decade may hold.


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Reformulation continues to be key, with siggi's launching yogurt pouches for children, which are touted as containing significantly less sugar and fewer ingredients than other dairy brands. The launch of Genius Gourmet – a ketogenic snack company – and a new chocolate peanut butter cup-flavoured plant-based protein powder from Orgain, highlight the emphasis on protein, as well as the shift away from animal-derived products.

Also in the plant-based space are ZENB's new Veggie Bites and Silk's docosa-hexaenoic acid (DHA) omega 3 beverage.
While siggi's says that leading kids' yogurt contains an average of 11.3 ingredients and 3.5g sugar per oz (28 g), its new pouches contain an average of 7.5 ingredients and 1.7 g sugar per oz. The US-based company's pouches will be rolled out to grocery and retail stores this month and contain non-tart 2 percent milk fat yogurt in portable packaging.

"I feel this is perfect for families – a tasty, simple yogurt pouch with no mess and less sugar," says siggi's Founder Siggi Hilmarsson
siggi's yogurt pouches for children will be rolled out to grocery and retail stores this month.This launch closely follows the company's expansion into plant-based yogurts last month. The products had been in development for two years and address key consumer demands within the non-dairy sector,


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including natural protein and sugar reduction.

The plant-based movement has already been seen in full-force, with ZENB, a plant-based food company known for its organic vegetable snacks, debuting its Veggie Bites. They are touted as being a bite-sized snack that offers a new way to get a full cup of vegetables into your daily diet. Each pouch of ZENB Veggie Bites offers a full cup of vegetables, is a good source of fibre and comes in a resealable package of six.

"ZENB's new Veggie Bites offer a wholesome snack with a clean label for people on-the-go and for those who love to graze throughout the day," says Christiane Paul, CMO of ZENB. "We continually strive to be a resource for plant-based eating and education, and the introduction of our new ZENB Veggie Bites enhances that mission by giving consumers more product options and a range of flavors to choose from."Silk is launching a DHA omega 3 plant-based beverage.

Meanwhile, US-based plant-based beverage brand Silk is adding a DHA omega 3 plant-based beverage to its nutrition platform. It blends oat and almond milk with pea protein to create a desirable texture and delivers 6 g of pea protein and 32 mg of DHA omega 3 per serving to help support brain health. It also delivers 50 percent more calcium than traditional dairy milk.

"Silk DHA Omega-3 is the latest example of our ongoing dedication to offering a delicious and diverse array of plant-based products that each delivers their own benefits," says David Robinson, Senior Brand Manager for Silk. "DHA Omega-3 helps support brain health for people of all ages and represents a simple way that consumers can make a healthy choice that meets their individual needs."

Protein for all

Those seeking plant-based protein can also turn to Orgain, which is offering Simple Organic Plant Based Protein Powder in Chocolate Peanut Butter Cup to US Costco customers. The clean nutrition producer says this launch meets the growing millennial consumer demand for products with fewer and simpler ingredients.

"Our newest addition to Costco warehouses will bring a satisfying, simple and clean sweet treat to our line of health-conscious products sold within the store," says Dr. Andrew Abraham, Orgain Founder and CEO. Orgain is offering Simple Organic Plant Based Protein Powder in Chocolate Peanut Butter Cup to US Costco customers.

The Simple Organic Protein Powder is US Department of Agriculture certified organic and contains zero fillers, binders, preservatives, artificial colors or flavors. The powder also serves up 20 g of plant-based protein and 4 g of organic fiber.

Rounding out the protein space is Genius Gourmet, a new keto snack company launched by Lance Rankin, one of the original co-founders of Premier Protein. The business is now promoting a line of on-the-go shakes, chips and bars. The products contain moderate protein levels and replace sugar with high-quality fat. The keto diet is set to be one of the top diet trends this year with many consumers seeing it as a "magic answer."

"We saw an opportunity in the keto space that wasn't being addressed. Consumers are looking for snack products that provide true keto nutritionals and deliver a world-class taste," comments Rankin. "We partnered with one of the top manufacturing facilities in the world and came up with a line of keto snacks that are increasing in popularity among the keto community."

By Katherine Durrell

Biofortification to tackle the "persistent burden" of nutrient deficiencies: Expert weighs in

08 Jan 2020 Nutrition Insight


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Nutrient deficiencies are a matter of global concern. Both obesity and malnutrition are pertinent problems that large parts of the population suffer from and often lead to nutritional deficiencies.

The issue is especially pronounced in underprivileged parts of the world. To tackle this, experts employ biofortification, which uses conventional crop breeding to increase micronutrient levels to address preventable deficiencies of key vitamins and minerals. The question remains, however, how useful is this tactic and what role does industry play?

"Bioforti?cation is regarded as one key strategy that addresses the persistent burden of micronutrient deficiency. However, it should be used as part of a comprehensive food system," Maria Nieves Garcia-Casal, Scientist, Nutrition and Food Safety Department for the World Health Organization (WHO), tells NutritionInsight.

She also explains that while industry could boost the use of biofortifying crops with one or more micronutrients, a robust rationale is needed to plan this program. Garcia-Casal also argues that it should be based on market analysis, government endorsement, and evaluation of food consumption patterns, food production system analysis and the nutritional assessment of the micronutrient status for important groups of the target population.

Once the rationale has been established and accepted, the planning activities can be put forward. These could consist of identifying existing coordinating bodies, a feasibility assessment of the capacity for implementing and monitoring and evaluation (M&E), and the development of a roadmap and timeline.

Bioforti?cation is regarded as one key strategy that addresses the persistent burden of micronutrient deficiency."The effectiveness of bioforti?cation of crops and their products to improve micronutrient intake in populations (and eventually contribute to nutrition, health and development) depends on several factors.

These include a supportive legal framework; adequate breeding; production and supply of fertilizer and bioforti?ed seeds and crops; the integration of bioforti?ed crops into food systems including allocation of agricultural land and farm labor to production of bioforti?ed crops; the development and implementation of quality assurance systems for seeds, fertilizers, and crops; access to bioforti?ed crops and their products; as well as behaviour change communication to policymakers, farmers, food producers and consumers," Garcia-Casal explains.

Why is biofortification important?

WHO has previously described food fortification as "the most cost-effective strategy for preventing and addressing micronutrient deficiencies in both developed and developing countries around the world." In March 2019, a Global Food Policy Report by the International Food Policy Research Institute (IFPRI) showed that a revitalization of rural areas is urgently needed to stop rising malnutrition rates.

Such revitalization could address the multiple crises facing rural areas, including malnutrition rates. The report notes that in 2018, malnutrition jumped for the third year in a row, with 821 million people globally now facing chronic food deprivation. The report also underscores the continuing need for improved nutritional development and innovation to tackle the myriad of issues laid out in the IFPRI report.

Many of the world's poorest and most malnourished people live in rural areas. Therefore, addressing development here is vital to achieving the Sustainable Development Goals (SDGs), which are a collection of 17 goals covering key social and economic development issues, such as poverty, hunger and gender equality. Rural populations account for 45 percent of the world's population, but 70 percent of "the extremely poor."

Rural communities have continued to find themselves in a "state of crisis," marked by a deepening cycle of hunger and malnutrition, persistent poverty, limited economic opportunities and environmental degradation, the report notes. Populations with low-incomes or production and trading issues stemming from geography are likely to see the most benefits from biofortification, Garcia-Casal notes.

The beneficial effects of biofortification were highlighted by a study published in the Journal of Nutrition in 2018. The report found that the consumption of iron-biofortified pearl millet can significantly improve cognitive abilities in Indian adolescents.

Boosting biofortification

Staple foods that are the ideal vehicles for biofortification in any of its forms include corn, wheat, sweet potato, rice and cassava.

"One approach to improve the intake of nutrient-rich foods is by increasing the nutrient content potential of staple crops through biofortification. It can be achieved through one of three main non-mutually exclusive agronomic methods: application of fertilizer to the soil or leaves; conventional or traditional plant breeding; or genetic engineering, which includes genetic modification," states Garcia-Casal.

Not a stand-alone solution

However, Garcia-Casal flags some issues surrounding biofortification that must be addressed. "Biofortified crops may not be adopted by farmers or accepted by consumers if they are different from non-biofortified crops in yield or organoleptic characteristics. Allergies or intolerance, particularly with bio-engineered crops or genetic modification have also been raised as a key concern. From the environmental perspective, cross-contamination of crops and the reduction of biodiversity in crops have been cited by some authors as threats of this strategy," she says.

Biofortification has clear nutritional goals but it cannot be considered as a stand-alone solution. Furthermore, biofortification efforts may be wasted if human factors related to micronutrient status are not taken into account. Factors such as inflammation and disease can affect absorption and bioavailability. Understanding the interactions between micronutrients is essential. An example of this is the synergic effect of iron and pro-vitamin A carotenoids or the competitive effect of iron and zinc, Garcia-Casal adds. This is particularly the case in terms of chemical and physical properties of the biofortified crops, complete meals or dietary practices, she highlights.

Biofortification has clear nutritional goals but it cannot be considered as a stand-alone solution. "Instead, it should be part of a comprehensive approach that needs to address food insecurity, extreme poverty and social injustice," she says. "Ethical aspects of biofortification require more research for understanding the impacts on issues of self-determination, liberties and food justice with regard to production and dietary choices.

Early involvement of the community, farmers and women in understanding the process and its importance, as well as finding local solutions could help in acceptance, adoption and implementation. Additionally, fair access to seeds and foods for farmers and consumers, ought to be considered," Garcia-Casal reiterates.

What's next?

The evidence suggests that biofortification could help tackle nutritional deficiencies, but it is a matter for both industry and policy to address. By mobilizing global bodies to push for increased biofortification of key crops, the world could potentially be more nutritiously fed, with related diseases significantly minimized in scale.

By Kristiana Lalou

Plant versus meat? Calls for better transparency in meat analogs as industry casts doubt on health benefits

10 Jan 2020 Nutrition Insight

As people around the world turn away from animal-derived foods as part of Veganuary, the market for meat analogs that look, feel and taste like meat continues to boom.

Much of this may be driven by the positive health connotations surrounding vegan foods, as various studies have linked red meat with a range of health issues, including cardiovascular disease (CVD). However, many argue that numerous plant-based meat alternatives (PBMAs) are more processed and contain more salt than traditional meat, with UK-based Nuffield Council on Bioethics calling for better labelling and transparency in this area. NutritionInsight takes a closer look at this space and examines how the health claims of PBMAs stack up against traditional meat.

The plant-based diet is enjoying sustained popularity in the mainstream, with Innova Market Insights reporting that as many as 10 percent of US consumers claim they always buy meat alternatives. A further 36 percent claim to do so often or sometimes. According to the scientific advisors of the Meatless Monday Campaign, Daphene Johnson, MPH, MPA, and Becky Ramsing, MPH, RDN, both of the Center for a Livable Future at Johns Hopkins Bloomberg School of Public Health, health is one of the primary reasons for people choosing PBMA.

"There's a growing body of scientific evidence that demonstrates a connection between high meat consumption and several chronic diseases like heart diseases, diabetes and some cancers," says Johnson.

Ramsing adds that their research and other consumer surveys have shown that health is still the main reason individuals choose to reduce meat consumption.

It is not just people already following a plant-based diet who have positive health perceptions of vegan foods. A study from the University of Bath has found that half of meat-eaters consider vegan diets to be healthy. Christopher Bryant, the study author, says that "being healthier than conventional meat is not necessarily a particularly high bar. The exciting thing about plant-based meat is that it is only improving – food scientists are working continually to improve the taste, nutritional profile and eating experience of these substitutes. In contrast, meat from an animal will be pretty much the same in ten years' time." Food scientists are working to improve the taste, nutritional profile and eating experience of plant-based meat alternatives. However, for Nick Allen, Chief Executive of the British Meat Processors Association, health may not be the main factor behind the plant-based movement. "There is a constant and disproportionate barrage of anti-meat publicity from the media raising concerns about climate change. We are noticing that this is becoming a greater influence than health concerns."

Calls for clearer marketing and labelling

Despite the bevy of positive attention surrounding plant-based foods, PBMAs have come under fire for often being ultra-processed, which may be associated with weight gain and excess caloric intake. For example, the Beyond Burger contains 19 ingredients and the Impossible Burger has 21, which may be unappealing to many customers seeking clean label foods with minimal ingredients. However, a spokesperson for Beyond Meat tells NutritionInsight that its products are made with "simple, plant-based ingredients and without any GMOs, soy, gluten or artificially produced ingredients, and are designed to at least meet, if not exceed, the nutritional profile of its animal protein equivalent. They also have equal or more protein, less total fat and 25-44 percent less saturated fat. Our products also do not contain any cholesterol, antibiotics or hormones, which you can find in most commercially produced animal-based meat."

The spokesperson also highlight the company's commitment to health and nutrition as a "key differentiator as Beyond Meat sets the standard for plant-based meat." Meanwhile, the soy leghemoglobin used in the Impossible Burger has faced criticism, with The Center for Science in the Public Interest (CSPI) branding the US Food and Drug Administration (FDA) approval of the ingredient as "barebones." The industry watchdog claims that the review excluded key endpoints well known to be associated with cancer risk and thus was inadequate under the law.

Furthermore, the Impossible Burger and the Beyond Burger contain 320 mg and 390 mg of sodium, respectively, which are much higher than the sodium content of plain ground beef. However, many forms of meat do end up with high sodium rates due to processes like curing. A recent Action on Salt report noted that two slices of bacon can contain as much as 2.84 g of salt – equivalent to more than eight bags of salted potato chips. Additionally, the calorie count and protein of the Impossible Burger and Beyond Burger are generally in line with beef burgers, as well as being lower in total and saturated fat and containing no cholesterol. Ramsing further notes that these burgers are intentionally made to have a similar protein and nutrition content to meat and that other PBMAs could be lower in calories and fat. Johnson adds that PBMAs are also typically higher in fiber.

As a result of the ambiguous health status of PBMAs, Nuffield Council on Bioethics has issued a briefing note arguing that more transparency is needed in the marketing and labelling around the health of PBMAs. "People choose PBMAs for a number of reasons – one of which is certainly health – but also for animal welfare purposes or environmental impact. It might be that people will be willing to trade-off the health aspects if they know they are helping the environment, but marketing them as 'clean' or 'green' might mean people overlook the health implications," says Hugh Whittall, Director of the Nuffield Council on Bioethics. The organization is now calling for clear marketing and labelling of ingredients, nutritional content and the processes involved, as well as transparency in the sources of ingredients and their sustainability, so that people can make informed choices about what they are consuming.

Healthy meat?Many of the recommendations regarding meat consumption are still controversial. One of the main ways that PBMAs could be beneficial to a person's health is by helping them to reduce the amount of meat they are consuming. According to Ramsing and Johnson, high levels of meat consumption have been linked to health issues such as heart disease, diabetes and obesity. Last April, a meta-analysis found that replacing red meat with healthy plant proteins could help the risk factors for CVD. Even more broadly, a study carried out by the Japan Public Health Center-based Prospective Study Group discovered that higher plant protein intake was associated with lower rates of mortality. However, many of the recommendations regarding meat consumption are still controversial, with a systematic review concluding that cutting back on red and processed meat has little or no impact on health. These findings,

which took into account data from millions of people, were met with strong reactions. The CSPI advised that "consumers ignore the recommendations," while a group of scientists signed a letter requesting that the papers be retracted. Will Jackson, Beef and Lamb Strategy Director at the Agriculture and Horticulture Development Board (AHDB) argues that when consuming meat, balance is key. "Different food groups work best when consumed in moderation as part of a balance plate approach. Beef, pork and lamb can play an important role in a healthy, balanced diet," he concludes.
By Katherine Durrell

Enzymatic bioprocess may produce tagatose economically

IFTNEXT December 9, 2019

While tagatose has many advantages for use as a sweetener in formulated food and drink products, its cost of production has hindered its application. But that may change thanks to research from Tufts University.

D-tagatose or tagatose is a rare sugar found in small quantities in some dairy products and fruits. It is nearly as sweet as sucrose but has only 38% of the calories. In addition, the natural sweetener has a low glycemic index and acts as a prebiotic to nourish beneficial gut bacteria. While tagatose has many advantages for use as a sweetener in formulated food and drink products, its cost of production has hindered its application. But that may change thanks to research from Tufts University. In a study published in Nature Communications, researchers Josef R. Bober and Nikhil U. Nair in the Department of Chemical and Biological Engineering at Tufts University describe an enzymatic bioprocess to isomerize tagatose from galactose at conversion rates up to 85%. These high rates were achieved by encapsulating L-arabinose isomerase enzyme in gram-positive Lactobacillus plantarum that was chemically permeabilized, enabling reactions at high rates, high conversions, and elevated temperatures.

According to an article from Tufts, these encapsulated enzymes with permeable cell walls are mini bioreactors that allow galactose to enter the cells and convert it to tagatose, which is then released. To achieve the 85% conversion rate, the researchers had to overcome several thermodynamic, kinetic, and stability hurdles. "You can't beat thermodynamics. But while that's true, you can circumvent its limitations by engineering solutions," said Nair, who is corresponding author of the study, in the article. "This is like the fact that water will not naturally flow from lower elevation to higher elevation because thermodynamics won't allow it. However, you can beat the system by, for example, using a siphon, which pulls the water up first before letting it out the other end." To optimize the reactions and achieve high conversion rates, Nair and Bober used the "siphons" of enzyme encapsulation for stability, higher temperatures to run the reactions, and feeding the bioreactors more efficiently through permeable cell membranes.

Mintel announces food, drink trends for 2020

IFT DAILY NEWS
December 10, 2019

Mintel has announced three key trends that will shape the global food, drink, and foodservice industries over the next 10 years.

Change, Incorporated: Expect to see consumers further prioritize plants in their diets, with the planet's health in mind as much as their own. From beer made from rejected cereal pieces to containers made from organic mushroom waste, food waste will lead the way for more sustainable consumption and innovation.

"In the next decade, consumers will be hungry for leadership and demonstrable change on environmental issues, ethical business practices, public health, and other important causes," said Alex Beckett, associate director, Mintel Food & Drink. "Consumers will reward brands that take action and improve important societal issues. The companies that will win in the next 10 years will be those that fuel the new era of conscious consumption. Tomorrow's conscious consumers will be looking for eco-friendly packaging and products, while also seeking guidance on how to make their diets more sustainable."

Smart Diets: Consumers will gain a better understanding of what makes them unique using health testing services, artificial intelligence-enabled apps, and increased personal data collection. Meanwhile, with consumers expected to live longer, many will want to learn how their diet can benefit long-term cognitive health.

High-Tech Harvests: Following in the footsteps of molecular whiskey, expect to see brands use science and technology to create new products, shorten production time, and confirm trustworthiness. Meanwhile, new ingredient growing regions, such as those in Africa and India,

and agricultural innovations, including floating farms, will emerge to tackle global food insecurity. “Science will interlace with the food supply chain to boost yields and combat climate change. Celebrating the sustainable, health, and cost benefits of lab-grown food will be crucial in educating consumers about nature-identical alternatives. But the food and drink industry will be compelled to elevate the role of nature, and humans, in the storytelling of these new, modern solutions,” said Beckett.

Bigger not better: Smaller packaging trend for chocolates taking off in India

By Pearly Neo 28-Nov-2019 – Food Navigator Asia

Smaller packaging for chocolates is gaining traction in India on the back of rising consumer awareness of portion control and health and wellness in the country, and F&B manufacturers have been urged to take advantage of this growing trend.

Data from market analysis firm Mintel has revealed chocolate to be an exceptionally popular confectionary option in India, with some 61% of surveyed consumers identifying themselves as ‘frequent users’ that eat chocolate daily or at least once a week. Overall, 21% of Indian consumers take chocolate on a daily basis. The chocolate industry in the country is estimated to hit INR172bn (US$2.4bn) this year, a rise of almostINR2bn (US$27.9mn) from 2018’s INR156bn (US$2.2bn).

“Brands can leverage this high consumer interest by increasing consumption occasions like snacking, introducing interesting flavours to encourage more trial, and looking at healthier alternatives or functional benefits,” said Mintel Food and Drink Analyst for India Natasha Kumar. The research also revealed that the popularity of individually wrapped chocolates has risen by over 50% between July 2018 and July 2019. One-sixth of Indian consumers are looking for chocolates in ‘smaller portions’.

"An increase in the share of individually wrapped chocolate products is indicative of increasing health-consciousness among Indian consumers who are trying to control portion size,” said Kumar.“Brands need to keep in mind that bite-sized portions are gaining popularity in India and, therefore, new product innovation should do the same. These firms have an opportunity to innovate in smaller SKUs as consumer preference trends in this direction. This will have more advantages in the future, when it comes to attributes like portability, storage and, more importantly, controlled portion size, creating permissible indulgence for consumers.”

Image © iStock.com/NokHoOkNoi

Companies who could benefit
A potential firm who is already innovating in its chocolate products along these lines is confectionary giant Mondelez International. One of the firm’s priorities has been to encourage ‘mindful consumption’, and has attempted to do this via a calorie reduction drive to offer consumers more individually-wrapped snacks that contain 200 calories or less.“We are relooking our portfolio based on World Health Organisation guidelines, so are developing some of our products to be less than 200 calories in line with this,” Mondelez South East Asia Associate Director Marketing Chocolates Vikram Karwal told FoodNavigator-Asia previously.“The aim of this calorie reduction drive is to help consumers be more aware of what they are consuming, their calorie intake and so on, and to give them more control over this.”

Examples of these include the firm’s Cadbury Dairy Milk Lickables, Mini Oreo pouch packs, Jacobs Crackers, Oreo 3-piece packs and more.“Although not all of our products have this option available yet, the end goal is that all brand offerings will have 100calorie and below options as part of the Mondelez portfolio,” said Karwal. So far, South East Asia has been a clear focus for the company in this, but such an initiative would likely also be very applicable in India, especially given these recent findings.

Chocolates for health and wellness
Further evidencing Indian consumers’ rising awareness of health and wellness was the finding that some 18%had expressed interest in sugar-free chocolate options, which led to some 3% of new chocolate product launches in India carrying a ‘no added-sugar’ claim.“Sugar reduction has become ‘the need of the hour’ and, albeit at a lower base, chocolate confectionery launches with the no-added sugar claim is gaining traction,” said Kumar.

In addition to this, chocolate functionality in terms of energy boosting is also garnering significant interest in the country, with 24% of consumers citing this as a reason for their chocolate consumption.“[As] more and more consumers prioritise functional food and drink, chocolate with added benefits will allow brands to stand out from the competition, [so] there is an opportunity to introduce more energy-specific claims to garner interest. Brands can look at incorporating ingredients such as guarana, coffee and protein, which are gaining popularity for their energy-providing properties.”

Chocolate-based 'ink' allows 3-D printing at room temperature

IFTNEXT December 10, 2019

A novel approach to 3-D printing has allowed researchers from the Singapore University of Technology and Design (SUTD) to 3-D print chocolate-based products at room temperature using cold extrusion.

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Results of the research study are published in Nature. The scientists sought to overcome the inflexible demands of hot-melt extrusion, which is widely used to 3-Dprint chocolates. The method requires the chocolate to be at temperatures between 31 C and 36 C so it can be melted and dispensed. While the method has advantages in simplicity and accessibility, the narrow range of operating temperatures can be highly restrictive.

Conversely, cold extrusion does not require the manipulation of temperature since it depends solely on the rheology of printing "ink" added to chocolate at the operating temperature. To date, the lack of inks with suitable rheological properties has prevented cold extrusion to be used in 3-D printed chocolate applications.

To bridge the gap, researchers from SUTD's Soft Fluidics Lab developed a method called Chocolate-based Ink 3-D Printing (Ci3DP). The method uses readily available chocolate products, such as syrups and pastes that are mixed with cocoa powder to alter the rheology of the ink. Chocolate-based inks with high concentrations of cocoa powders exhibited shear-thinning properties with high viscosity; the inks also possessed a toothpaste-like property that did not flow at rest.

To highlight the capabilities of the novel method, 3-D models consisting of chocolate syrups and pastes were demonstrated. The method was extended to the fabrication of a chocolate with different textures by using multiple types of inks. For instance, a piece of chocolate was fabricated with a semi-solid enclosure and liquid filling at the same time, further demonstrating the flexibility of the scientists' new approach."The simplicity and flexibility ofCi3DP offer great potential in fabricating complex chocolate-based products without the need for temperature control," said lead study author Rahul Karyappa in a press release.

Added principal investigator Michinao Hashimoto, in the press release,"Ci3DP is capable of fabricating customized food in a wide range of materials with tailored textures and optimized nutritional content. This new approach also widens the industry's capabilities in 3-D food printing, allowing for the cold-extrusion of food products that are temperature-sensitive."

Dairy protein without the cow? 'Cell factories do all the work'

By Katy Askew 05-Dec-2019 – Food Navigator

Danish researchers have developed 'cell factories' that can produce food ingredients from the by-products of food production that would otherwise be wasted.

Scientists at the National Food Institute of the Technical University of Denmark have developed a way to make milk protein 'without the use of a single cow'. According to the researchers, 'a cell factory does all the work'.

Whey from milk processing contains large quantities of sugar, which are currently either discarded or used as animal feed. The Danish researchers have developed a process that sees bacterium convert this waste sugar into milk proteins or other ingredients in what they describe as a 'cell factory'. The cell factory can turn a side stream such as lactose into butter aroma, for example. Simply put, the bacterium are fed the milk sugar and then 'spit out' butter aroma – a food ingredient that food companies can use as flavouring in different products, from cookies to sauces.

To produce the butter aroma, the researchers have modified certain processes that naturally take place inside the bacterium. The bacterium has been genetically modified. Some genes have been removed whereby routes in the metabolism have been redirected and the enzymatic reactions have been changed."Basically, the lactic acid bacterium eats the milk sugar, lactose. In the cheese process the bacterium converts the lactose through a series of enzymatic steps and then spits out the desired compound. In cheese production this compound is lactic acid. In our engineered strains these are various chemicals/ingredients," Professor Peter Ruhdal Jensen, Head of Research Group at the National Food Institute, told FoodNavigator.

The Institute's researchers have also developed a patented technology based on a cell factory that uses lactic acid bacteria to turn residual lactose from dairies into ethanol – the alcohol contained in

Image © iStock.com/baibaz

spirits. Professor Jensen explained that the potential of this technology extends across various ingredients and side streams.“Lots of ingredients could be produced in this way, and certainly most protein ingredients. We have already shown that we can produce several food ingredients and other chemicals from dairy side-streams. Our microbial platform is a modified version of the cheese bacterium Lactococcus lactis which we can relatively easily amend to produce other valuable substances. In the future scenario, we will not only use the side streams from dairies, breweries, and other food production. We will also utilise all resources from the agricultural sector."

GMO: The elephant in the room?
The Institute says it can make cell factories in two ways: ‘natural’ and ‘by means of genetic modification’. The natural method sees researchers screen for suitable bacterium. “The good thing about the natural method is the industry can freely use it to produce food without labelling.” However, there is a significant draw-back. The researchers are essentially ‘looking for a needle in a haystack’ – meaning that it is a ‘very time-consuming process’. Genetic modification, on the other hand, is ‘much faster’. But the ingredient produced will have to undergo an authorisation process in the European Union and will be subject to labelling requirements because it is a GMO, the Institute stated. However, Professor Jensen said he does not expect ingredients produced in this way to face the same backlash that greeted the development of GMO crops in Europe.“The GMO is not a part of the final product,” he stressed. “It is therefore equivalent to the GMO production of rennet which most people eat on a daily basis.” He believes that there is another strong argument in favour of cell factories: sustainability. “I think in general the young generation is more concerned with climate issues than GMO.”

‘This will have a positive impact on emissions’

Indeed, with concerns over the climate crisis high on the agenda, the idea that you can produce high protein food without the need for animal agriculture could prove appealing to many. Currently, animal agriculture accounts for 14.5% of all GHG emissions, according to the FAO. It would appear consumers are willing to change their dietary habits to combat this. Concern over the sector’s environmental impact has been credited as one of the drivers behind the plant-based boom, for instance. By utilising side-streams that would otherwise be wasted, the cell factories also improve the efficiency of food production, valorising waste materials and boosting production levels. Such innovation will be needed to provide enough high-quality food to cater to the growing global population without exhausting the planet’s finite natural resources. "The ambition is to learn how to make the most of all side streams. This will have a positive impact on our emission of greenhouse gases. And when all comes to all: the greater utilization of the foods we produce, the smaller impact on our agricultural land,” Professor Jensen concluded.

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

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

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

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

Consumer demand for probiotics will continue, thanks to its benefits for gut health. As such, intestinal flora and gut health will be the focus of innovation, Japanese probiotics specialist Morinaga told us. The Bifidobacteria longum BB536 strain, which promotes gut and skin health, along with weight management and colon cancer prevention, will be the focus of the firm's product innovation strategy next year."We will continue to develop products using the Bifidobacteria longum BB536 strain. Also, we will stress the health functionality of our BB536 strain and respond to consumers' health concerns," a spokesman at the firm said. Isolated from healthy infants almost 50 years ago, the BB536 strain also won the Most Innovative Health Ingredient prize at the Gulfood Manufacturing Industry Excellence Awards last month. Cost-savings and convenience factors such as "drinking in the house and relaxing" were other selling points consumers would consider when buying a supplement, the spokesman added. As such, the firm will focus on developing its top-selling convenient food products, including cheese, ice-cream and infant food in the next year.

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

Growing affluence and higher levels of education in India have increased consumer knowledge of the health benefits of supplements and health foods, with millennials driving a large portion of the market. Tech savviness among millennials also affords this particular set of consumers easy access to information surrounding health and nutrition, and a desire to avoid diseases like diabetes and heart disease (both highly prevalent in India) motivates them to seek


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healthy alternatives to their usual diets. CEO of Indian nutraceutical brand OneLife, Gaurav Aggarwal, told NutraIngredients-Asia: "The nutraceutical industry as a whole is growing rapidly, as demand is increasing on account of consumer awareness of preventive healthcare. Exposure to global trends and wellness products among millennials is driving them to seek out supplements and health foods." However, he added that such awareness was concentrated in urban India. Consumers in Tier 2 and Tier 3cities are still largely unaware of such products, and require plenty of education on their own nutritional needs. Urban millennials "understand their nutrient deficiencies and want to use nutritional supplements to solve that". Aggarwal said, "As marketers educate consumers about the benefits of these nutraceutical products, acceptance will increase even faster." Emboldened by this trend, nutraceutical companies in the country have begun to innovate more extensively. "Nutraceutical firms in India are integrating all the aspects of the health and wellness sector to place greater emphasis on the nutraceutical space," said Aggarwal, "The category is still nascent and nutraceutical firms are developing products based on ever-evolving consumer needs."

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

Australian supplements are well-loved by Chinese consumers for their quality and high production standards, and will continue to take centre-stage in China. This is according to H&H, a Chinese health supplement company that bought over Australian supplement firm Swisse Wellness last year. During the recent Double 11 annual sales event in China, its newly acquired flagship brand Swisse topped the charts, putting up a close fight against leading Japanese brands Kao and Moony. Australian brands like Bio Island and Blackmores raked in a total of USD$30.7bn (RMB$213.5bn) at this year's Double 11 event, a 27% increase from last year. H&H, the Chinese owner of Swisse, told us that the firm's recent sales performance was a testimony to the popularity of Australian products in China. "As we saw on 11-11, with Swisse being the number one imported brand overall and number one supplement brand, our brand and products are seen as 'best in class', reflecting the premium, proven and aspirational aspects of our consumer offerings, and leveraging the clean, green, safe and secure reputation of Australian-made products," said Severine Brichard, H&H Group Director (Marketing). Moving into 2019, Swisse will focus on product development around gut health, beauty-from-within, cognitive function and stress support. Brichard noted that the Chinese market was especially quick to pick up new trends, since its customer base was younger and more digitally savvy. Witnessing the attractiveness of Australian supplements, Chinese e-commerce giant JD has also signed an exclusive strategic agreement with Australian brand AuMake early last month. Through the deal, JD.com will channel customer inquiries for Australian and New Zealand products. In addition, the two will develop a co-owned brand manufactured in Australia and New Zealand for Chinese consumers.

4. The constant evolution of innovations for seniors in Japan

Industry experts have pointed to Japan as the leader in health and nutrition innovations for older consumers, with other countries falling far behind. At the recent DSM Health Academy in Tokyo, Gita de Beer, DSM Nutritional Products' Global VP of Marketing(Food & Beverage), said only 1% of such innovations globally was meant for seniors. In contrast, 41% of Japan's health and nutrition innovations are targeted at seniors, which she said presented a "huge opportunity to export that knowledge to the West". The Japanese are also "celebrating ageing" and as such, want to be healthier for longer. Based on this, industry is looking at not just age group, but mindset and lifestyle to inform its product development. This approach will allow brands to better cater to specific groups of older consumers. In addition, companies are also focusing on developing traditional foods with a nutritional twist, so seniors can maintain a healthy diet without drastically changing their eating habits. Convenience is another factor manufacturers are taking into account, and innovations for seniors will feature easily accessible packaging, as well was easy-to-consume formats.

5. Weeding out the benefits: CBD's rising popularity in Asia

Hemp and cannabinoids (commonly known as CBD, in reference to the phytocannabinoid cannnabidiol) are being used in an increasing number of supplements and functional foods and beverages in the APAC region. Swiss firm Creso Pharma has been one of the more prominent market players in APAC, most recently signing a commercial agreement to bring its CBD hemp-based nutraceutical cannaQIX50 to New Zealand. CEO and co-founder Dr Miri Halperin Wernli said APAC was "a region where projections suggest 23% of the worldwide spend on CBD products will take place by 2022". New Zealand's Ministry of Health revealed that there were as many as 235,000 medical cannabis users in the country, where CBD is a class B1 controlled drug. Since 2017, medical practitioners have been permitted to prescribe CBD products to patients. Regulators are also in talks to remove CBD's controlled drug status, a change likely to result in more prescriptions and a surge in sales. In neighbouring Australia, medical marijuana has been thoroughly researched for use in supplements and pharmaceuticals. BioCeuticals

recently invested $500,000 in a medical cannabis trial to investigate its effects on brain tumours and symptoms common in patients.

Earlier this year, former Swisse executive George Livery joined supplement firm Bod Australia to oversee the development of its 'sustainable cannabis business'. Elsewhere in APAC, Japanese consumers have taken a liking to imported CBD products: in February, Canadian CBD firm Phivida received approval from Japanese authorities to sell its products in the country. This included its Nano-CBD Iced Tea, a beverage formulated to treat the gastrointestinal tract, and maximise the body's absorption of orally ingested cannabinoids. Earlier this month, Aussie manufacturer Elixinol discussed the success of its hemp oil products in Japan with NutraIngredients-Asia. Founder and CEO Paul Benhaim called Japan "the leading country" in Asia with regards to hemp usage and added, "There is an increased acceptance this year, and that's why we are confident that 2019 is a year of success in Japan."

Targeting the plant-based consumer: Promote craveability and taste above all else, says Mintel

By Mary Ellen Shoup 09-Dec-2019 – Food Navigator USA

Appealing to a growing audience of flexitarians who are striving to introduce more plant-based foods into their diets requires different brand communication strategies than when engaging with vegetarians and vegans, according to Mintel.

More than one in five US consumers identifies as a flexitarian, representing a large market opportunity for plant-based food and beverage brands and foodservice operators, according to a Mintel report. To best reach this growing audience, Mintel suggests addressing the primary reasons why consumers are transitioning to a more a plant-based diet in the first place.

Lead with health messaging and emphasize taste

"There are three main reasons: health, ethical, and environmental. Health reasons, such as concerns about blood pressure or cholesterol, act as a main driver for consumers in general. Concerns about animal ethics or the impact of animal products on the environment are secondary drivers. Interestingly, these motivations differ by diet type; flexitarians are driven by health reasons, while vegans or vegetarians are motivated by ethical or environmental reasons," said Amanda Topper, associate director of foodservice research at Mintel. "Leading with health messaging will resonate with most consumers."

Taste acts as a main driver for purchases of plant-based alternatives, and as such, should not be overlooked as part of a marketing and brand communication strategy, Mintel noted. While the novelty of a plant-based item may drive trial, if it's not "craveable," it will not drive repeat purchase, said Mintel. "Plant-based comfort foods, like fried Buffalo cauliflower or Impossible cheeseburgers, have a place alongside health-focused dishes like loaded veggie grain bowls," Topper said.

Consumers recognize the difference between processed meat substitutes and plant-forward dishes


Image © iStock.com/Pekic

Mintel also recommends not trying to hide the processed nature of many plant-based alternatives as consumers' awareness of what goes into making these products grows. Mintel research from 2019 shows that more than three in five consumers agree whole plant foods are healthier than processed meat substitutes, and one in seven agree that meat alternatives like Beyond Meat or the Impossible burger contain too many ingredients. However, one in five consumers still want to see more plant-based options."Consumers' dietary preferences vary based on occasion and they are starting to recognize that processed meat made from plants is not automatically healthier," noted Topper.

"As consumers begin to question the healthfulness and ingredients in mainstream meat alternatives, operators should promote innovative takes on plant-forward ingredients. Interesting preparations, global flavour profiles and limited time offers can all drive interest. This may take the form of a vegetable-forward dish with familiar, yet flavourful, preparations such as roasting or smoking, or even by adding a house-made spice blend or sauce to manufactured plant-based proteins," she continued.

Meat 'craveability' sells

When dining out, consumers are more likely to indulge and therefore, restaurants should appeal to these diners with familiar, craveable meat alternatives, recommended Topper. "Consumers, especially flexitarians, still crave the taste of meat. More than half of US consumers agree meat alternatives should closely mimic the taste of meat. Different occasions will call for different plant-based experiences meaning restaurants should offer processed meat substitutes as well as plant-forward dishes," Topper said. "The majority of consumers report no specific dietary restrictions and are most focused on taste over specific ingredients if selecting a plant-based protein option," added Karen Fromanski, Mintel health and wellness analyst.

REGULATORY NEWS

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FDA to include konjac carbohydrate as dietary fibre following two year wait

14 Jan 2020 Nutrition Insight

Glucomannan, which is found in the root of the konjac plant (also known as the elephant yam), is set to be added to the US definition of dietary fibre.

The Food and Drug Administration (FDA) will add the ingredient to its list of nine other non-digestible carbohydrates it proposes to include within the definition of dietary fibre. In the meantime, the agency plans to "exercise enforcement discretion" to allow manufacturers to include the amount of these additional fibres in the dietary fibre declaration on the Nutrition and Supplement Facts labels. This ruling opens up new avenues for manufacturers to appeal to the increasing number of consumers seeking fibre claims. The FDA's action follows a citizen petition from The Food Lawyers, a boutique law firm, in early 2018 asking that the FDA engage in rulemaking to include konjac flour as a dietary fibre. The FDA highlights that dietary fibre are certain naturally occurring fibres that are "intrinsic and intact" in plants. Alternatively, they could be added isolated or synthetic non-digestible soluble and insoluble carbohydrates that have physiological effects that benefit human health. Glucomannan falls into the latter camp, with the FDA determining that it can help reduce blood cholesterol. The Food Lawyers also submitted evidence arguing that glucomannan can be beneficial in terms of increased defecation frequency, reduced energy intake and weight management. Nevertheless, the FDA has chosen not to address these points and instead focus on the blood cholesterol aspect.

Some dietary fibres are naturally occurring fibres that are "intrinsic and intact" in plants. The agency identified a total of 26 studies that examined the effect of glucomannan on blood cholesterol, including eight studies identified from The Food Lawyers, seven from public comment and eleven additional ones found independently by the FDA. However, scientific conclusions could not be drawn from 17 of these studies for a variety of reasons, including inappropriate statistical analysis or control group and lack of dietary information on other components in the participants' diets. The nine studies eventually used to inform the FDA's decision include a range of populations including children and adults with hypercholesterolemia, with sample sizes ranging from 11 to 39 participants. The participants consumed capsules or food products containing glucomannan, at doses of 2-13 g per day. While three studies did not find any significant changes in cholesterol stemming from glucomannan, six demonstrated a reduction in total and/or low-density lipoprotein (LDL) cholesterol. Additionally, the FDA notes that one of the studies that did not find an effect involved subjects consuming a carbohydrate-restricted diet, which is not typical of US diets.

A changing list

Glucomannan is the tenth non-digestible carbohydrate to join FDA's list of ingredients to be added to the definition of dietary fibre. The other ingredients include mixed plant cell wall fibres, arabinoxylan, alginate, inulin, high amylose starch, galactooligosaccharide, polydextrose and resistant maltodextrin/dextrin. The 2018 inclusion of these marked the end of two years of uncertainty for manufacturers. Last April, Resistant Starch 4 (RS4) was also added to the list following MGP Ingredients' submission of a citizen request. This means that the company's flagship brands Fibersym and FiberRite can be officially counted as fibres when calculating a product's fibre levels, which are displayed on the labelling. The FDA said that firms can submit citizen petitions at any time, which will be reviewed on a rolling basis. Seven non-digestible carbohydrates are already included within the dietary fibre definition, including beta-glucan soluble fibre, psyllium husk, cellulose, guar gum, pectin, locust bean gum and hydroxyl-propyl-methyl-cellulose. Additionally, naturally occurring fibres occurring in foods such as vegetables, whole grains, fruits, cereal bran, flaked cereal and flours are included.

Barriers in a saturated market?

Some fibres, particularly at high inclusion levels, can cause digestive discomfort. The broadening of the FDA's dietary fibre definition has led to rampant growth in fibre NPD. However, industry leaders have told NutritionInsight that this saturated market could lead to barriers for new entrants. Additionally, increased rates of enriching foods with fibre could lead to digestive tolerance. As manufacturers are challenged to deliver the enhanced nutritional benefits of fibre that consumers demand, some fibres, particularly at high inclusion levels, can cause digestive discomfort. Therefore, the ingredients must be carefully considered. Nonetheless, there is renewed interest in fibre as consumer interest remains strong.

Several recent FDA success stories indicate that greater marketing efforts will go into an area that never seems to tire. Consumers are still mainly consuming fibre for digestive health, but newly discovered health benefits are driving applications too. According to a 2018 consumer survey conducted by Innova Market Insights, 44 percent of US consumers are increasing their consumption of fibre, with 33 percent of UK consumers also doing so. At the same time, 21 percent average annual growth has been reported in new product launches carrying a fibre claim. Newly discovered health benefits are driving fibre applications. When asked for reasons why they are consuming fibre, the majority of US consumers (64 percent) listed digestive health, but interestingly weight management (24 percent) and energy (16 percent) also featured.
By Katherine Durrell

Labelling foods with physical activity needed to burn calories linked to healthier choices

May be worth trying as little evidence that current system is curbing obesity, say researchers
Science Daily
December 10, 2019


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Labelling food and drink with the amount and type of exercise needed to burn off the calories in it might be a more effective way of encouraging people to make 'healthier' dietary choices, indicates research published online in the Journal of Epidemiology & Community Health.

Given that the current system of food labelling by calorie and nutrient content is poorly understood, and there's little evidence that it is altering purchasing decisions or having any impact on obesity levels, it may be worth trying, suggest the researchers. If widely applied, it might, on average, shave off up to 195 calories per person per day, they calculate. Physical activity calorie equivalent or expenditure (PACE) food labelling aims to show how many minutes or miles of physical activity are needed to burn off the calories in a particular food or drink. For example, eating 229 calories in a small bar of milk chocolate would require about 42 minutes of walking or 22 minutes of running to burn these off.
The UK Royal Society for Public Health has already called for PACE labelling to replace the current system, but to date, there's been little strong evidence to back this stance.

The researchers trawled research databases and other relevant online resources for studies that compared PACE labelling with other types of food labelling or none for potential impact on the selection, purchase, or consumption of food and drinks (excluding alcohol).
They found 15 relevant randomised controlled trials, and pooled the data from 14 of them. The results showed that when PACE labelling was displayed on food and drink items and on menus, on average, significantly fewer calories -- 65 fewer per meal -- were selected. PACE labelling was also associated with the consumption of 80 to 100 fewer calories than no food labelling, or other types of labelling. Based on their findings, and average consumption of three meals a day plus two snacks, the researchers suggest that PACE labelling might potentially slice around 200 calories off daily intake. But they caution, the number of included studies was small, and the design of each varied considerably. Most weren't carried out in real life settings, such as restaurants and supermarkets. Nevertheless, they suggest: "PACE labelling shows some promise in reducing the number of kilocalories (calories) selected from menus, as well as the number of calories and the amount of food (grams) consumed."

The evidence shows that even a relatively small reduction in daily calorie intake (100) combined with a sustained increase in physical activity is likely to be good for health and could help curb obesity at the population level: PACE labelling may help people achieve this, they say. "PACE labelling is a simple strategy that could be easily included on food/beverage packaging by manufacturers, on shelving price labels in supermarkets, and/or in menus in restaurants/fast-food outlets," they write. "Public health agencies may want to consider the possibility of including policies to promote [it] as a strategy that contributes to the prevention and treatment of obesity and related diseases," they conclude.

'Clarity is key': Low and no sugar claims in the spotlight as South Korea tightens regulations

By Pearly Neo 09-Dec-2019 – Food Navigator Asia

Image © iStock.com/ Juanmonino

The South Korean Ministry of Food and Drug Safety (MFDS)has announced tightened food labelling and advertisement standards in a move to strengthen the country's Food Labelling and Advertising Act, with sugar and other 'negative content' claims receiving much focus.

The new regulations were announced via a formal notice on the MFDS website."This notice serves as the Enforcement Decree of the Korea Food Labelling and Advertising Act, so as to protect consumers from improper labelling or advertising, and to promote public health," said the director.

Sugar was a key point of focus in the tightened regulations. 'Low' or 'no' claims are no longer allowed, except under strict conditions: less than 5g per 100g or less than 2.5g per 100ml of food for 'low-sugar' claims, and less than 0.5g per 100g or 100ml of food for 'no-sugar' claims. "These claims can be used only when the content of sugar is lowered or removed through the manufacturing and processing process in accordance with Korea's detailed labelling standards of nutritional content," said MFDS. Terms such as 'natural sugar' have also been disallowed for being misleading, whereas products with sugars present in the form of oligosaccharides will need to state the names and contents of all mixed oligosaccharides. Sweeteners have not been spared either – more specific labelling rules of these have also been dictated in the new regulations, under the section discussing food additives."Food additives added directly in food manufacturing and processing added should be labelled with their name and use, for example: Saccharin Sodium (sweetener)," said MFDS. In addition, several other forms of 'negative content' claims have been prohibited, and listed under the section discussing fraudulent labelling and advertising. These include when a product claims not to contain a particular ingredient, but actually does; or when it claims to 'not contain [certain] chemicals', as is considered to be overly vague and general. "Also, attempting to overstate the absence of certain ingredients or nutrients is not allowed. These could include negative content claims for ingredients that have already been prohibited by the government, or stating a product 'does not contain Nutrient A', as this could cause misunderstandings, such as if the consumer misses the word 'not'," added MFDS.

Other regulations

A big focal point of this standards update is to provide clarity, as can be seen with the additional banning of claims that a product 'conforms to regulations and standards for hazardous substances' such as 'this kimchi meets pesticide standards'. "Labels and advertisements that emphasise the fact that they conform to standards and standards could lead to a situation where other products are perceived as relatively noncompliant," said MFDS.

Pictorial representations of natural raw ingredients are also not allowed to be used to describe a synthetic ingredient, such as using a picture of a chicken on flavouring when the flavouring is chemically-derived. The use of big word or terms that are not scientifically validated have also been banned, to prevent consumers from assuming that these are 'superior' due to the use of such terms."Labels and advertisements that mislead or confuse consumers that products are superior to other products by using terms that do not have sufficient objective and scientific evidence are not allowed, for example 'Superfood'," said MFSI.

Aussie TGA proposes to classify non-food appropriate sports supplements as 'medicines'

By Tingmin Koe 11-Nov-2019 – NutraIngredients Asia

Australia's national regulator, the Therapeutic Goods Administration (TGA), is proposing to classify non-food appropriate sports supplements as therapeutic goods.

In Australia, most supplements are classified as complementary medicines and are registered by the TGA. The regulator presently registers complementary medicines as AUST-L products, while medicines are subject to a more thorough assessment and listed as AUST-R.A public consultation is now underway to consider if sports supplements should be regulated the same way and will end on December 3. At present, some of the sports supplements on the market, which carry claims for therapeutic use, can be classified as foods instead of therapeutic goods via the Formulated Supplementary Sports Foods framework. According to the proposal, the TGA has suggested to declare certain sports supplements as therapeutic goods based on the ways they are being used, advertised, or sold.

What to expect

If the TGA's proposal is passed through, there may be changes to some sports supplements in terms of their formulation, claims, labelling, and advertising. Products that are appropriately listed Formulated Supplementary Sports Foods and contain ingredients appropriate for food will still be available in the market as foods. Otherwise, the products may reappear on the market as medicines, in which manufacturers are required to change the manufacturing, formulation, labelling, or advertising of the products to meet the requirements for therapeutic goods. Products that are presently available but are unsafe for use due to the presence of inappropriate substances might be removed from the market as the TGA takes regulatory action.

Case studies

In its consultation paper, the TGA has highlighted a number of case studies to illustrate the problem of classifying certain sports supplements as foods. One example is a pre-workout powder that provides choline supplementation. The TGA proposed the product to be classified as a medicine, as it has made therapeutic use claims, such as "boost energy".

Moreover, the amount of choline that it provides has exceeded the maximum amount for a formulated supplementary sports food. However, at present, the product could be classified as a food via the Formulated Supplementary Sports Foods framework. Another example is a capsule product that contains the active ingredient Endurobol. According to TGA's proposal, it should be classified as a medicine, as it contains endurobol – an ingredient included in schedule 10 to the Poisons Standard. However, under at present, the product could be classified as a food product under the Formulated Supplementary Sports Foods, since this framework does not expressly exclude products which contain such substances.

Past and recent controversies

In its consultation paper, the TGA cited two studies from 2016 and 2017, which analysed the prevalence of non-compliant products present in the market. For instance, a report from 2017 showed that more than one in 20 sports-related supplements contained anabolic steroids that were not declared on the product labels. It concluded that there has been a "real health risk and doping violation risk" for athletes consuming sports supplements.

Chile's food regulations are reducing unhealthy child marketing tactics

By Niamh Michail 09-Dec-2019 – Food Navigator LATAM

Fewer sugary breakfast cereals are using child-targeted marketing tactics since Chile's strict food regulation, while healthier cereals are adding fun characters to their products, according to recent research.

Manufacturers of sugary breakfast cereals, sodas, snacks and sweets often use fun on-pack characters or free collectible toys to appeal to children. Previous research has shown that such marketing strategies can influence children's food preferences and choices and even their taste perceptions. Chile, which has one of the highest rates of obesity prevalence in the world - nearly one quarter (25%) of children aged six and seven are obese, according to a 2017 Mapa Nutricional report – brought in strict laws requiring manufacturers of unhealthy foods to add front-of-pack warning labels to their products. Products that are 'high in' cannot be promoted or sold within schools and are restricted from marketing to children under 14 years of age, according to the regulation, which famously banished – among many other licensed or branded characters - Tony the Tiger from Kellogg's Frosties (Zucaritas in Latin America).

Best and worst in class

For this study, the team of researchers took photographs of 168 breakfast cereals before 2016 and 153 after. They found that before the regulation, 43% of 'high in' cereals used child-directed strategies on their packaging. This fell to 15% after 2016.Healthier cereals are also now making the most of their ability to use child marketing strategies. Almost one-third(30%) of cereals that are free from warning labels now use such strategies compared to just 8% before. Arcor's Cereal Kidz products, for instance, are free from warning labels and can use cartoon characters. The products also boast 'Yo no tengo sellos' (I don't have any warning labels)."After Chile restricted junk food marketing to kids in 2016, there was a substantial decrease in the prevalence of child-directed marketing strategies on unhealthy breakfast cereals in the marketplace," said lead author, Lindsey Smith Taillie. "However, it is not clear whether these changes were due to companies adjusting their marketing strategies or reformulating their products to avoid the regulation," she added.


Image © iStock.com/Dishant_S

Evidence the law is 'a promising tool'

The researchers write: "As packaging is a predominant medium through which children are exposed to food marketing, the reduction in child-directed strategies found in this study suggests that children in Chile are being less exposed to child-directed marketing of products high in calories or sugar in their food environment." The authors suggest that further research could look at the impact on other product categories in Chile, such as sugar-sweetened beverages. According to a 2019 report by the Pan-American Health Organization (PAHO), the per capita sugar-sweetened beverage sales in Chile are the highest worldwide."This is highly relevant because child-directed marketing of unhealthy food has been associated with obesity development. We therefore interpret our findings as evidence that Chile's Food Labelling and Advertising Regulation is a promising tool for reducing children's exposure to child-directed marketing on unhealthy packaged foods."

Spreading around the world

According to Taillie, the results from this study are being used both across the region and globally to inform the development of new policies on child-directed junk food marketing. Barry Popkin, distinguished professor of nutrition at Gillings School, who provided input for the study, said the Chilean efforts were part of "a very comprehensive approach to prevent obesity and non-communicable diseases like diabetes and hypertension". The Chilean model has been copied like-for-like by Israel and partially copied in Peru and Uruguay, where it will come into force next year. "A strong law has been passed in Mexico, as well, and 4-5 other major countries are in the process of adopting the Chilean approach," added Popkin.

Milking it? Indian regulator puts onus on industry for self-testing and monitoring

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

The Food Safety and Standards Authority of India (FSSAI) has just released its new Action Plan for Safe and Quality Milk and Milk Products, with the majority of actions targeted at self-testing or self-monitoring by dairy companies, farmers and consumers.

The plan comprised of 12 points of action, and was based on the previously-released National Milk Safety and Quality Survey 2018, the results of which have previously been disputed by various parties despite the agency's insistence that these had successfully 'dispelled wide-spread perception that liquid milk in the country is largely adulterated'. "The outcome of the survey is a myth buster. The survey results indicate clearly that milk being sold in India is largely safe for consumption. Let the fears associated with consumption of milk vanish," FSSAI said previously. In a new statement on this latest action plan, FSSAI continued to claim that 'only 7% of milk samples had contaminants or adulterants that rendered such milk unsafe', and that the 12-point action plan would 'ensure the safety and quality of milk and milk products in the country. These actions are broadly in three areas, namely – Testing and continued surveillance, Preventive and corrective action for implementation and monitoring, and Consumer engagement," said the agency.

Closer scrutiny of the 12 points of action in the 'Action Plan on site' which FoodNavigator- Asia has viewed courtesy of FSSAI has revealed that many of these are very heavily reliant on self-testing and self-monitoring, whether by dairy companies, farmers or consumers. This was despite FSSAI CEO Pawan Agarwal saying in a separate statement that: "More rigorous enforcement by local state authorities is essential to build public trust in food [especially as] public trust has been eroded in recent times." For instance, under the Testing and continued surveillance area, two of the four main points of action are about self-testing by either dairy plants (Action 3) or consumers (Action 4). Action 4 would mainly be for consumers to ensure the safety of the milk consumed at home.

Under Action 3, FSSAI aims to implement a Scheme of Testing and Inspection (STI) by January 1 2020 to ensure 'monitoring and self-compliance' by the dairy plants, which would contain quality standards to adhere to. However, no mention was made of any consequences or penalties that firms would face in the case of failure to comply, though it was stated that local authorities 'can plan regular audits and inspection [to] evaluate the effective implementation of the STI' and FSSAI would verify adherence in the in the initial rollout via 'third party audits'. The remaining two actions under this area were nationwide rapid testing by local authorities (Action 1) and 'at least one state food laboratory per state with high end precision equipment' to test for adulterants (Action 2).

When it came to the second area on Preventive and corrective actions, FSSAI insisted that dairy adulteration was only 'restricted to [a] few areas and in times when there is large demand-supply gap' based on the previous survey results. "Such incidents can only be tackled by having strict vigil in such areas. Special drives may be undertaken during summer and around festival times throughout the country," the agency said of adulteration – the only direct statement made of actions to tackle milk contaminated by items such as hydrogen peroxide, detergents, urea and neutralisers. The rest of this section was mostly dedicated to quality concerns surrounding fake products and the addition of sugars to raise milk Solids Not Fat (SNF) levels. Safety concerns mainly surrounded antibiotics and aflatoxin levels (which enter milk via animal feed), the latter of which is currently 'not regulated in the country', leading most actions targeting this to again be of a self-sufficient nature. Other proposed actions in the plan were for milk vendors to voluntarily register for FSSAI's Verified Milk Vendors Scheme, improving animal husbandry practices, increasing consumer awareness, and milk fortification - most of which require proactive or voluntary action by companies, farmers and/or consumers.

Food safety in India

FSSAI also released a separate set of data on food safety analysis conducted from 2018 to 2019 by the various Indian states close to the time of the action plan reveal, claiming that just 3.7% of the analysed samples were unsafe for consumption. "A total of 106,459 samples were analysed. While 3.7 % of these samples were found to be unsafe, 15.8% were found to be substandard and 9% samples had labelling defects," said Agarwal. Ten states or union territories were identified as the worst-performing in terms of food safety enforcement, namely Chattisgarh, Himachal Pradesh, Karnataka, Assam, Jharkhand, Odisha, Rajasthan, West Bengal, Telengana, and Uttarakhand.


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This poor performance was attributed to the local authorities 'not being able to put in place full-time officers for food safety' and '[lacking] proper food testing laboratories'. Action 2 mentioned above is presumably targeted at addressing this issue, but it is only one of a few enforcement/authority-based actions included in the 12-action plan. Given the low levels of trust in the country's dairy stemming from large discrepancies between the data in previous studies and this latest survey, and reports of high adulteration rates in the country despite FSSAI reassurances, whether or not this heavily self-motivated action plan will truly work to bring real improvement to the local dairy sector remains a large question mark.

More control: FSSAI wants to expand jurisdiction over India's food imports and exports

By Pearly Neo 01-Jul-2019 – Food Navigator Asia

The Food Safety and Standards Authority of India (FSSAI) is looking to amend the Food Safety and Standards (FSS) Act to expand its jurisdiction over the country's food product exports, in addition to relaxing licenses and gaining control over animal feed.

Thus far, food product exports in India have not been listed under the purview of any domestic agency or the FSS Act. According to statistics from the Agricultural and Processed Food Products Export Development Authority (APEDA) the value of exports has increased to US$18.6bn (INR11.9mn) in the FY2017-2018 timeframe from US$16.2bn (INR10.8mn) in FY2016-2017. As of June 24, this has already hit US$18.7bn (INR13mn) for the FY2018-2019 timeframe. According to the Economic Times , this was part of an FSSAI proposal that has been sent to the Ministry of Health and Family Welfare, as revealed by an anonymous FSSAI senior official. Another major item in the proposal was for accountability in the case of food-related offences to be redefined. "In case of a labelling error, only the manufacturer will be held liable, unlike now wherein the retailer and the transporter are also held accountable," said the FSSAI official.

FSSAI also intends to bring animal feed under its control, in the interest of increasing overall food safety and quality. The related animal types include cattle, poultry, fish and shrimp. "During a survey on milk varieties available in market, we found 9.9% of the samples unsafe, [and a] majority of them were failing in aflatoxin which is due to animal feed. Unless we have feed control, we can't control milk quality," the FSSAI official said. Other food-related regulatory issues discussed in the proposal were the simplification of the process for food service businesses to obtain licenses, to relax license regulations for direct marketing agencies and ecommerce companies, and to remove the annual food company license renewal process. Annual licence renewal was said to see 'massive delays' due to a 'staff crunch at FSSAI' , hence the agency has suggested that food businesses make 'annual declarations, with annual fees' instead.

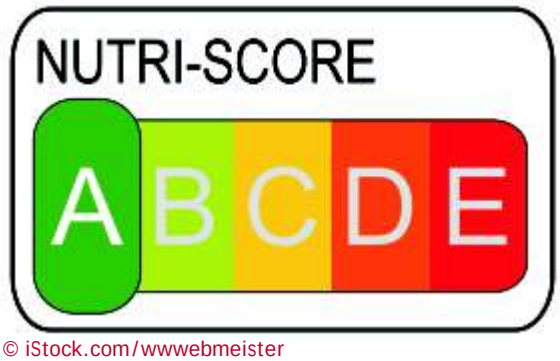
Tightening grip on imports as well
In addition, the FSSAI has also requested input from 'all stakeholders' via an official notice with regard to a separate proposal to designate specific food import entry points in the country. At present, the agency has Authorised Officers at 416 locations throughout the country to 'regulate [the] import of food items', but it now wants to tighten control over food imports by designating 132 'Point of Entries' for food items. "In order to put in place a robust food regulatory framework [to] prevent the entry of sub-standard/unsafe food into the country, it is proposed to notify 132 Point of Entries [covering] seaports, airports, Inland Container Depots (ICDs), Land Customs Stations (LCSs) and Special Economic Zones (SEZs) as food import entry points," said FSSAI Director (Imports) Suneeti Toteja. "All efforts have been made to cover the various regions [from where] major food imports are currently taking place." All stakeholder suggestions and comments will be accepted by FSSAI until August 15 2019.

Netherlands backs nutritional labelling: 'Nutri-Score is best to promote healthy choices'

By Katy Askew 02-Dec-2019 – Food Navigator

The Netherlands has thrown its weight behind the Nutri-Score nutritional labelling system, suggesting that of the three schemes used in Europe – Keyhole, Traffic Lights and Nutri-Score – it is the 'best' at promoting healthy choices.

Announcing he had selected Nutri-Score as the country's labelling scheme of choice, Dutch secretary of state for health Paul Blokhuis said that the system enables consumers to 'quickly and easily' compare different varieties of breakfast cereals, frozen meals or spreads, for example. However, while Blokhuis said Nutri-Score 'worked well', he did note the



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current nutritional calculations do not 'always comply' with Dutch dietary guidelines, according to research from RIVM and the Netherlands Nutrition Centre. "That must improve before Dutch food producers can put it on their packaging," according to a statement from the Dutch government. An international committee of scientists - with Dutch input - will work on aligning standards. This effort should be completed by mid-2021, according to the authorities.

'Making healthier choices easier'

The health secretary said this news was a 'major step' towards empowering citizens to make better dietary choices. "Making the healthy choice easier, that has always been our commitment. We are now taking a major step in that direction. I chose Nutri-Score because it appears that this logo helped consumers best to make healthier choices," Blokhuis said.

In recent months, Dutch health authorities have conducted research into three different food selection logos: Keyhole, Traffic Lights and Nutri-Score. It found consumers 'understand Nutri-Score best'. The score awarded a food is based on the amount of calories, sugars, saturated fat, salt, protein, fibre, fruit, vegetables, legumes and nuts in the product.

'Not an ideal system'

While Nutri-Score was described as the best choice based on consumer research – and the Dutch government noted the system 'receives support from consumer organisations, supermarkets and food producers' – this does not mean 'it is an ideal system'. The RIVM, Netherlands Nutrition Centre and nutrition experts point out that there are differences between the Nutri-Score, the Dutch nutrition guidelines and the food pyramid ('Schijf van Vijf'). For example, Nutri-Score is 'too positive' about white bread and 'too negative' about olive oil compared to Dutch dietary advice.

To tackle this divergence, the Netherlands will actively participate in an internationally independent committee of scientists working to evaluate and adjust of the international Nutri-Score standards. Blokhuis noted: "There is still work to be done before we are satisfied and can continue to fully implement the introduction. We are now opting for Nutri-Score to be able to work with Dutch food scientists and to have it further improved."

Turning Nutri-Score into an 'international system'

Nutri-Score is a scientific food score system from France. Scientists and nutritionists developed the system under the instruction of the French government. Belgium, Germany, Switzerland, and Spain have since also opted for Nutri-Score. With more countries adopting the logo, the French government wants to turn Nutri-Score into a system that is managed internationally and advised by an independent scientific committee.

Blokhuis said that this international appeal was another positive factor for the Dutch food industry, which is a major exporter. "We connect with a logo that will also become increasingly prominent internationally. As the Netherlands we naturally import and export a lot of food, so that is nice by-product." The Dutch Food Industry Federation (FNLI) suggested this was an important aspect of the logo selection for businesses in the country. "It is important for our members that a food selection logo can be used across national borders. And the comprehensibility and trust in the logo are also preconditions for success," said FNLI director Marian Geluk.

Building on the National Prevention Agreement

The Dutch authorities said that the move builds on the National Prevention Agreement, which aims to tackle growing rates of obesity in the country. One in two Dutch people are overweight and the health regulators described this situation as 'one of the most important public health problems' of our times. Under the National Prevention Agreement, 70 organizations have made commitments 'for a healthier Netherlands'.

In addition to the selection of a nutrition logo, work is also being done on a new approach to using less salt, saturated fat and sugar in products. Producers have agreed that by 2025 there will be 30% less sugar in the total amount of soft drinks consumed throughout the Netherlands.

2021: Why wait? Responding to the news, Dutch consumer association

Comsumenten Bond said it was 'pleased' the government has opted for Nutri-Score. The group said it has been calling for the introduction of nutritional labelling since 2004. "I am pleased that our efforts have been successful. Consumers can really make progress with this. Our research has already shown that a large majority of consumers think Nutri-Score is a good idea. I am therefore pleased that they have been listened to and that there will now be an independent and well-founded logo," Comsumenten Bond director Sandra Molenaar commented.

However, the consumer watchdog was less pleased that the system wouldn't be in place until 2021 'at the earliest', stating a preference for a 2020 introduction – as had originally been suggested in the National Prevention Agreement. Molenaar noted: "We understand that Blokhuis wants to investigate how Nutri-Score can better align with Dutch dietary guidelines. But we believe that consumers should be able to benefit from the benefits of Nutri-Score before 2021."

The consumer group also flagged a key weakness of the agreement – that it remains voluntary. “If Nutri-Score is introduced in the Netherlands, companies are not yet obliged to use the new logo.” For this reason, the Consumers' Association is participating in the European citizens' initiative Pro-Nutri-Score to make the food logo mandatory within the EU. The FNLI was also hopeful that the adoption of Nutri-Score could bring a pan-European labelling scheme a step closer.

At European level, national governments can introduce nutritional labelling schemes on the condition that application is not made compulsory – because such a move is seen as contrary to the European internal market. "It is important for the members of the FNLI that the logo can also be used in neighbouring countries. Perhaps with the choice [of Nutri-Score] a European logo has come a step closer," FNLI's Geluk suggested.

Safety review backs natural astaxanthin, but holds off on synthetic forms

By Hank Schultz 06-Dec-2019 – Food Navigator USA

A recent review of astaxanthin found evidence to support the safety of dosages of 12 mg up to 24 mg a day. But that applies to only to natural astaxanthin, not to the synthetic forms, the authors said.

Astaxanthin is a carotenoid that can be derived from several natural sources and is most commonly produced by cultivating the algae species Haematococcus pluvialis . The ingredient has also long been available via chemical synthesis, too, and has been used as a feed additive in aquaculture to give the flesh of farm raised salmon and trout an appetizing reddish hue.

Image © iStock.com/Artemidovna

Difference between forms

Cultivating algae is neither easy nor cheap. Several producers of the natural form of the ingredient came together to form the Natural Algae Astaxanthin Association (NAXA) to protect what they claim are the unique benefits of their natural form. The argument has been that while the synthetic forms of the ingredient might have the same chemical formula, there are significant stereo-isomer differences between the forms. In their view means that the safety and efficacy evidence that has been developed for the natural forms cannot be applied as a matter of course to the synthetic forms. One of the suppliers of the synthetic form, DSM, had countered that its ingredient, called AstaSana, had gone through a food additive approval process, which provides ample evidence of safety.

The review, published in the latest edition of the journal Phytotherapy Research, was written by Thomas Brendler, PhD, of the New Jersey-based consulting firm Plantaphile, and Elizabeth Mary Williamson, PhD, of the School of Pharmacy at the University of Reading in the UK. The authors reviewed 87 human clinical trials that used astaxanthin. The trials used short term dosages of as much as 100 mg/day, and long term dosages ranging up to 12 mg/day. The authors also noted that a number of New Dietary Ingredient Notifications have been filed on the carotenoid. These used a variety of dosages up to 24 mg/day.

No adverse events reported

In none of these trials which collectively included more than 2,000 subjects, were any serious adverse events reported. Nor were any liver toxicity indications found. The authors said the only thing approaching an adverse event observed in these studies was a reddening of the stool at high dosages. The authors noted that the 87 trials were conducted over a series of years, and varied in quality. They said the wide variations in how the data was reported as well as other issues made it impossible to rank the studies or to develop valid exclusion criteria, so they included them all.

“In general terms, however, it can be said that the more recent randomized clinical trials have been conducted with more scientific rigor than earlier open label and observational trials,” they noted. “Considering the available regulatory, preclinical, and clinical data, there appear to be no applicable safety concerns for natural AX supplementation at levels of at least 12 mg/day,” the authors concluded. “Although synthetically produced AX has only demonstrated species-specific effects at very high doses, it must be considered unique and should not be introduced for direct human use (in contrast to animal feed) until safety parameters are established and human clinical trials showing potential benefits have been conducted,” they added.

NAXA, for its part, issued the following statement: “We applaud this new review highlighting natural astaxanthin’s impeccable safety record based on the available regulatory, preclinical and clinical data. We also agree with the authors’ conclusion that synthetic astaxanthin should be avoided for direct human use until human clinical trials showing potential benefits have been conducted.”

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