APR 2019

PFNDAI Bulletin

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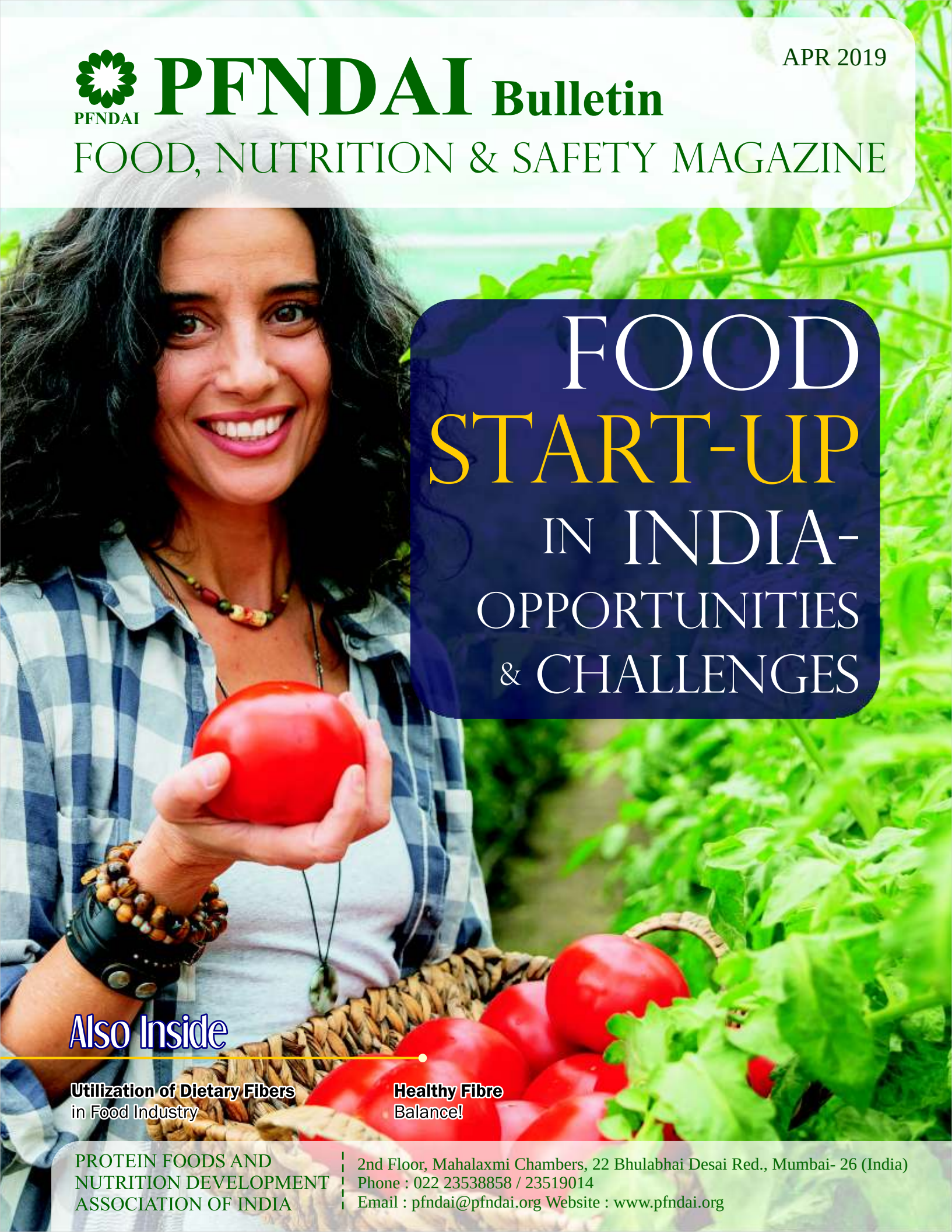
FOOD, NUTRITION & SAFETY MAGAZINE



FOOD START-UP IN INDIA- OPPORTUNITIES & CHALLENGES

Also Inside

Utilization of Dietary Fibers in Food Industry

Healthy Fibre Balance!

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PFNDAI **PFNDAI Bulletin** APR 2019
FOOD, NUTRITION & SAFETY MAGAZINE

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EDITORIAL

Nowadays one hears so much about protein deficiency and fibre deficiency. Indians are vegetarians. Most of the protein foods are from animals. Milk is a very good protein source with very high quality. It is also acceptable as vegetarian food. However Indians do not consume much milk and their intake is normally through tea, coffee, paneer or some milk based sweets. Thus milk protein although is consumed every day the quantity is very less. Only children drink milk. Some adults do consume breakfast cereals with milk but drinking milk one habit Indians by large have not accepted.

Meats, fish, poultry and eggs are not acceptable for vegetarians and even the non-vegetarians do not consume adequate amounts of animal foods of non-dairy category so they are also deficient in proteins.

Vegetarians get most of their proteins from grains and pulses. Even non-vegetarians get substantial quantity of proteins from these sources. These proteins are not as high quality as animal proteins as they lack some of the essential amino acids. There are also other problems like presence of certain natural substances in these materials which lowers the digestibility of proteins that further aggravates the problems of deficiency.

The protein quality problems could be partially removed by mixing grains and pulses as Indians have been consuming roti or rice with dals making these combination better than consuming grains or pulses alone. However, their quality is still less than animal proteins. There is one plant protein that is as good as animal protein namely soya protein. Lately soya consumption in India has increased but still soya has not yet become daily food in most households.

The problem of protein deficiency is tackled by many high protein preparations that are available in the market. They contain either milk or soya protein with many other macro and micro nutrients which could be consumed with milk or water as beverage. These may contain 30 to 80% proteins recommended for different groups of people including children, pregnant and lactating mothers, active adults, seniors and sportspersons.

When it comes to seniors they prefer to consume their regular foods although in lesser quantity. When they reduce food intake their protein intake also goes down which is undesirable as their protein requirement remains more or less same as younger adults. So they need to consume these high protein powders which they find a bit expensive.

Less expensive alternative could be use of oats and soya products that are available in market for various applications. These products could either be used as porridge or may be mixed with curry or dal preparation. Many of them have spices added to make them appealing. Some are also available for making sweeter preparations. Soya products like chunks and granules are also quite easy to use in many common food preparations having spices.

Adding both oats and soya products certainly give a big boost to protein and dietary fibre intake among seniors and also in other groups as well. It will go a long way in maintain health in a less expensive manner.

Prof Jagadish Pai,
Executive Director,
PFNDAI

FOOD START-UP IN INDIA- OPPORTUNITIES & CHALLENGES

By
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Introduction : Start-up India

Start-up India is a flagship initiative of the Government of India. It intends to build a strong eco-system for nurturing innovation and providing opportunities for the start-up businesses in the country. It was launched in 2016 with the aim of empowering start-ups by young minds with vibrant ideas.

Globally, start-ups have been seen as nation builders. They make a positive contribution to a nation's economy and create jobs. Because of their success they create a sense of indigenisation of innovations and technologies thereby developing a viable business model around innovative products, services, processes and a platform that drives successful industry and an economically strong nation.

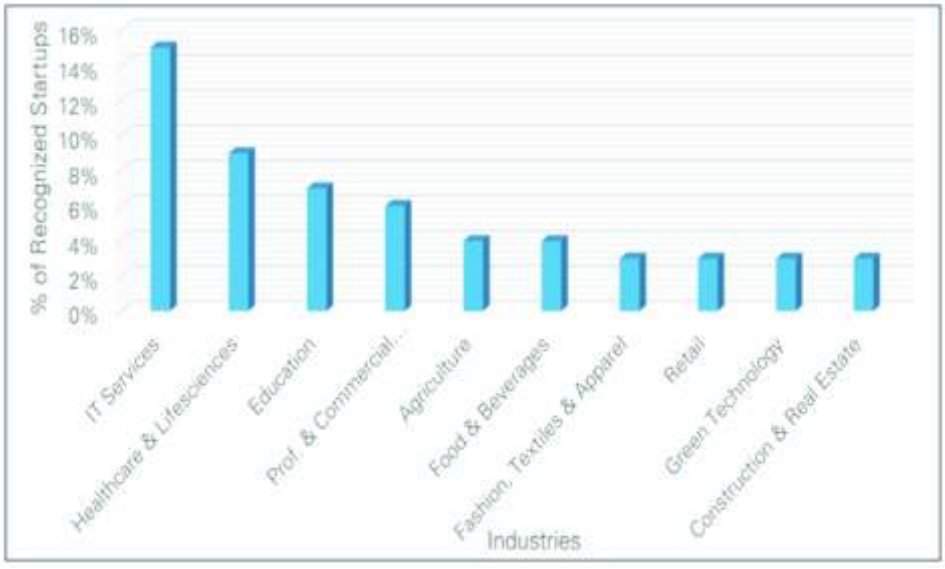
According to the Department for Promotion of Industry & Internal Trade DIPP, a start-up is a registered firm or business (private limited or registered partnership firm) which is within less than 7 years of establishment and has less than Rupees 25 crores in the preceding financial year. In the case of the Bio Technology sector the eligibility period is extended to 10 years.

A start-up firm should be working towards innovation or improvement of existing products and should also be undertaking commercialization of new products, processes, or services driven by technology. A start-upmust have the potential to generate employment and create wealth.

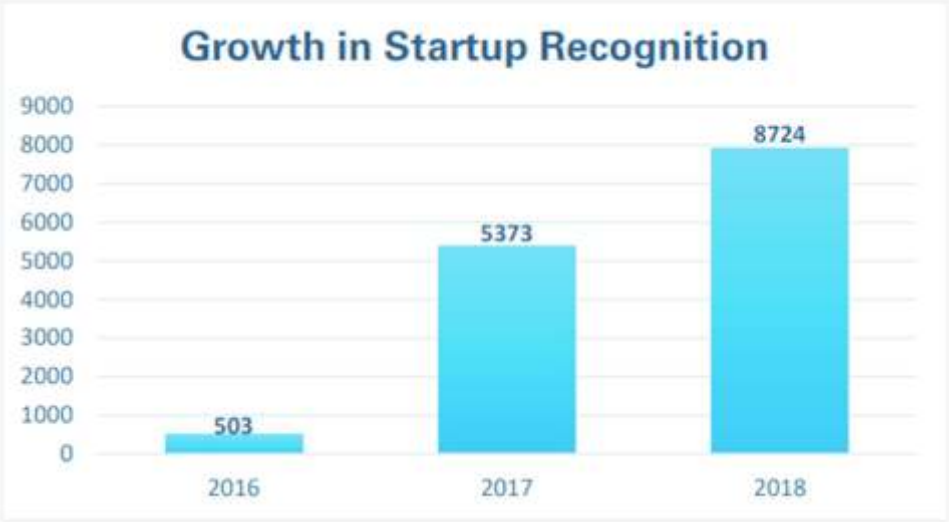
Why Food Start-ups?

There have been over 36,000 registered start-ups in India of which over 15,000 got start-up recognition. Out of these 129 got funding support. Most of these start-ups are in IT services with almost 15% followed by Healthcare &Life sciences with over 8%.

Graph 1: Start-up Statistics in India : Jan 2019



Graph 2: 3 Year Start-up Statistics of India.



Agriculture and Food & Beverages sector together account for less than 8%. Thus there is good scope for more start-ups in these sectors.

In the state-wise analysis, it is observed that most start-ups were in Maharashtra with over 2500 followed by Karnataka, Delhi and Uttar Pradesh. Start-ups have been growing in number over the years.

In the year 2016, there were only 503 start-ups whereas these numbers grew substantially to 5373 in 2017 and to 8724 in 2018.

Components of a start-up

A start-up has five different basic components namely the entrepreneur getting (1) Unique Idea,(2) Finding Market or Need for the idea,(3) Getting Finance,(4) Finding the Supply Chain for the product and (5) Getting Regulatory Compliance. All these are different areas but work in unison to make the project successful.

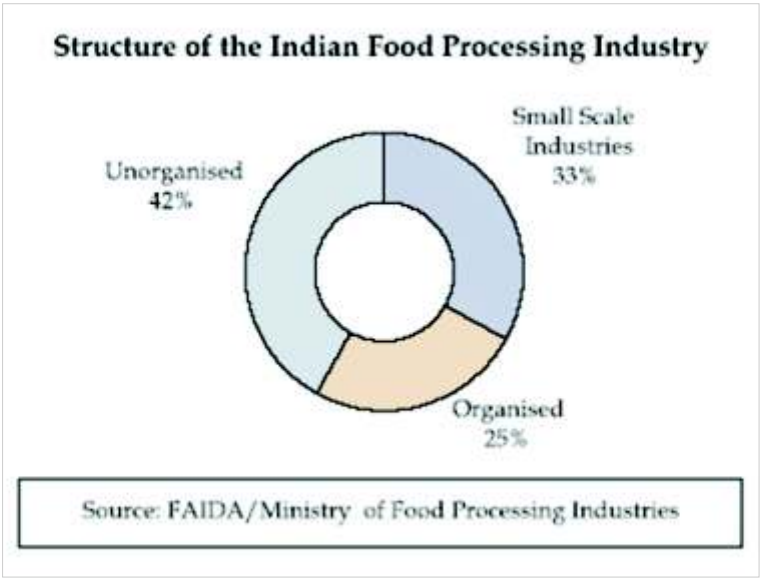
Diagram 1: Components of start-up

Food Start-up- Indian Scenario

India has the second largest land cover in the world with diverse agro-climatic zones across its regions. It has sunshine throughout the year with potential to cultivate a vast range of agricultural products. Large marketable surpluses are produced which can become abundant raw material for processing and a middle class population of over 45 crores is a big market for the food industry. With changing life styles and eating habits, food processing start-ups will only flourish in the coming days. India adds 1.5 crores to its population every year which is equivalent to 3 New Zealands or 2 Israels every year. There is a need for 4 billion meals in India every day so having a food start-upismore desirable here.

India produces various agricultural commodities which places it in the first rank in many sectors in world production. It produces highest amounts of Milk, Pulses and Tea whereas it is ranked second in case of wheat, rice, fruits, vegetables, sugarcane etc. In coarse grains and edible oilseeds it ranks third.

Graph 3: Food Processing structure



Looking at the Indian food processing industry, only 25% of it is in the organised sector whereas 75% is small-scale of which 42% is unorganised and 33% is classified as small-scale industries. There is a constant change occurring of unorganised industry becoming organised.

Food processing in India is still at a nascent stage. While in other countries such as the USA, France and Malaysia, processed fruit and vegetable account for 70% to 80%

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of total production, India processes only 8.3%.

There is a great scope for increasing the level of processing in other foods as well including milk and milk products, meat and poultry as well as in marine products. India has a huge food market with a population of 120 crores and an annual food expense of Rs. 15 lakh crores. Thus the extent of scope is tremendous and sustained.

Global trends such as (1) Increased use of Natural Products, (2) Increasing shift to Wholesome Nutrition Rather than functional benefits addressing a particular health concern, (3) Increased Consumer Attention to Nutritional Labels rather than relying on advertising claims, (4) Increased Focus on Healthy Food that is also Tasty, and (5) Increasing Certification and Regulations for Building Credibility in Market- are expected to be seen in Indian markets in the near future.

Several consumer behaviour studies have shown considerable trends in Indian food and these could be good for the food start-up area
1. Safe- being Organic, Natural or Traditional
2. Convenient- being Ready-to-Eat, Ready-to-Cook or On-the-Go Foods
3. Healthy- such as Functional Foods, Nutraceuticals etc.

These consumer behaviours show the way for Food Start-ups.

Some of the Major Trends shown in the Food Start-ups are as follows:

In the Offering area following trends are seen:
1) Private Labels, Change from Products to Services, Innovative Packaging that influences purchase, and Sustainable Products.
2) Trends in the Consumption are: Health Consciousness (Low Sugar/Carb, High Protein, and Multi Grains); Natural, Organic & Fresh Produce; Cold pressed Beverages, Global cuisines; Ready-to-Cook or Ready-to Eat products; Review based ordering and Regional Tastes
3) There are also major trends shown in food delivery sector such as E-grocery, Restaurant food delivery, Food kits, E-FMCG food & Semi-prepared food.

Entrepreneurship & Innovation

A start-up is like a horse race in which the product is a horse and the entrepreneur is a jockey whereas the market is the track. Entrepreneurs take on the risk of starting their own enterprise or invest in other start-ups. While entrepreneurs are people who notice opportunities and take the initiative to mobilise resources to make new goods and services, Intrapreneurs are people who notice opportunities and take initiative to mobilise resources, however, they work in large companies and contribute to the innovation of the firm. Intrapreneurs often become entrepreneurs and start their own start-up.

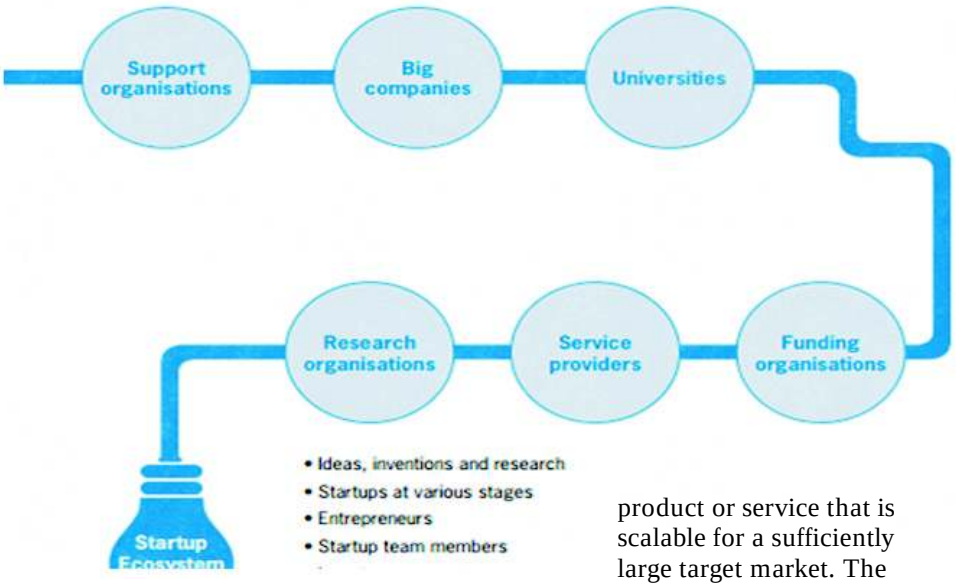
Common traits of entrepreneurs are that they are original thinkers and risk takers. They also take responsibility for their own actions. They feel competent and capable of completing tasks. They also set high goals and enjoy working toward them. Some of the other traits seen in many successful entrepreneurs are that they have self-employed parents and they are commonly first born. They are between 30 and 50 years old and are well-educated having a college degree.

Some of the traits that separate successful and unsuccessful entrepreneurs are the following:

Successful ones are creative and innovative, able to position themselves in shifting or new markets, can create new products, processes and/or delivery whereas those who are poor managers, with low work ethics, inefficient, fail to plan and prepare and poor money managers will find it impossible to be successful entrepreneurs.

For the start-up, innovation is the key. Entrepreneurs must remember the rules of innovation. Innovation is never a single event but a drawn out process that is first discovered and then transformed. Also commonly, innovation never occurs in a single field of expertise but exists in combination. Asking the right questions defines the problem or task that needs to be carried out. One must also remember that there is no optimal size of a company for innovation. A bigger company may have resources but a start-up has the agility for bringing up the innovation. The innovation may be leveraged to get partners, platforms as well as talents and tech support for the start-up. When innovation starts giving returns much of it should be invested in improving the existing innovation to make it better. Some should be invested in adjacent markets and some should be invested in completely new innovations so the growth of the start-up is continued. Finally disruptive innovations need new business models which are different from the existing ones.

c. Startup ecosystem



Start-up Ecosystem:

For a start-up to materialise there are many components necessary. There are support organisations, big companies and universities along with funding agencies, service providers and research organisations that make it possible for start-ups to begin. Many ideas, inventions and research can give a boost to start-ups which may be at different stages with entrepreneurs and start-up team members trying to make the start-up successful.

Start-up Life cycle

Just like a living organism, a start-up has different stages of life. It starts with the Discovery of a product or service that is scalable for a sufficiently large target market. The second stage is Validation wherein the discovered product or service hits the market for initial consumers. This will give birth to the start-up which enters into the next stage namely the Maintenance where the benefits and problems faced due to global presence need to be addressed. The final stage is either the Sale of the start-up to a bigger giant or to acquire huge resources for renewal or further growth of the start-up to become a large company.

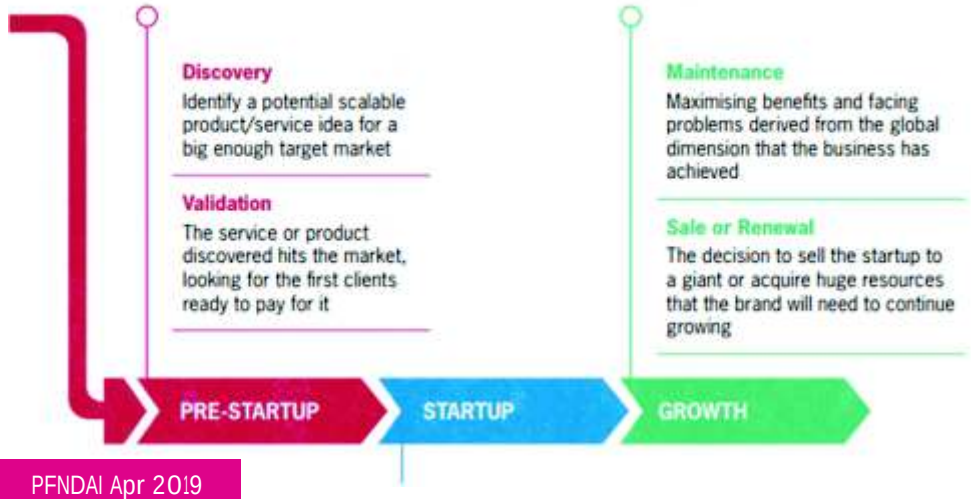
Modern Research & Development

It is very essential for any start-up to do a lot of research before getting into execution of the idea. The entire basis is to have the mind set of Research and Development keeping in mind the consumer perception throughout the process of bringing the start-up into existence. While conducting R&D in food industry there are a couple of things to be remembered. One needs to take into consideration the Consumer for whom the product or service is targeted and the Technology used for food processing. To find out the consumer needs, one need to carry out mapping of the consumers which may be conducted by carrying out a market survey.

Technology always enables newer products or processes to be used in order to satisfy consumer demands. Extrusion and baking are some of the means of supplying some nutrients and healthy ingredients to consumers who are demanding them.

As consumers are finding less time and skills for preparing some of the products themselves, technology offers solutions such as cut vegetables, dosa batter that saves their time and efforts. Innovative packagings using various technologies have been serving the consumers by providing them convenient and shelf-stable products. Consumers are also looking for some traditional recipes which are formulated by the industry with some modern twist through innovative formats.

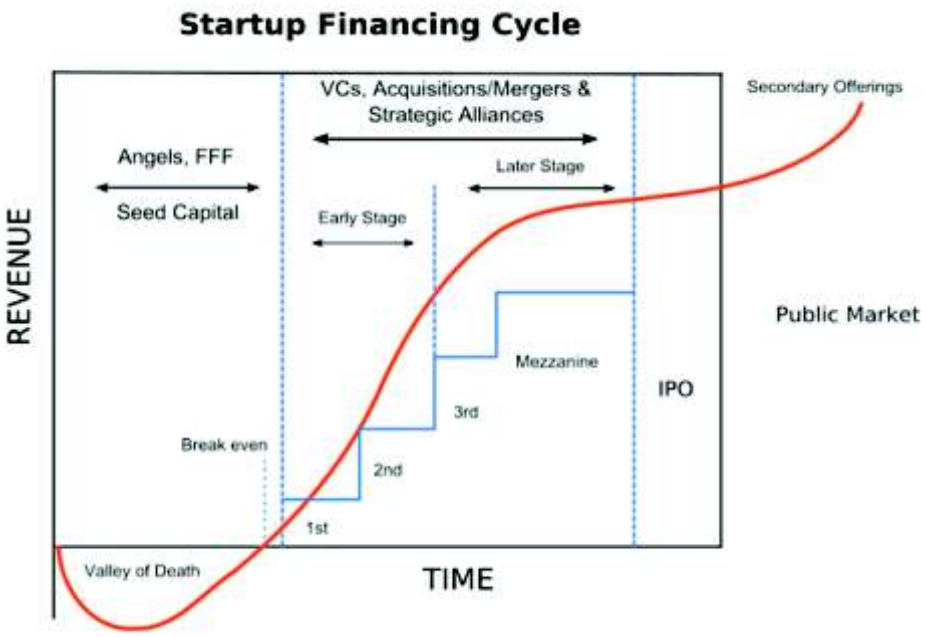
b. Stages of the startup lifecycle



Finance for Start-ups:

Any start-up needs financing, which can have three stages in its lifecycle.

• First being funding by Angel Investors or Seed Funds required in the early stage. They invest solely into the entrepreneur with the innovative idea. Normally it does not bind the entrepreneur with any governance formalities.



• Venture Capital is the second stage of finance which is used to scale up the company's proven business model. This comes from larger institutional funds. Here the focus is on building sales as well as establishing global presence.

• The final stage of financing is Public Markets which can be tapped by late stage start-ups which need to expand more aggressively or actively innovate the product. Public equity funds together with public markets provide large amounts of liquidity.

Finance can be raised through several sources including family and friends, banks and government schemes. There are crowd funding and Angel Investment options open as well as for the start-up. One can also try venture capital from finance agencies.

As mentioned above, different finance schemes are needed for different stages of a start-up and the figure exemplifies the same. (Fig. taken from Wikipedia). Here, FFF- Friends and Family; VCs- Venture Capitalists; IPO-Initial Public Offering)

In India, there are over 45 VC (Venture Capitalist) companies and most support IT start-ups. There are very few that support Agri and Food space. Some VCs that support such start-ups are Omnivore, Villgro, Unitus Seed Fund, Ankur Capital, Infuse Ventures and Acumen.

Start-up stage wise Drivers and Risk factors

Every start-up has its own objective. At each stage the drivers and risks are different. Those who overcome the risks go on to the next stage.

Stage	Driver	Finance	Risk
Concept or idea stage	Innovative Idea	Self/Friends /Crowd Funding	Copy Cat
Pre-seed or validation stage	Proof of concept	Seed / Angels	Belief
Seed or early traction stage	Route to Market	VC	Valley of Death
Growth or scaling stage	Volume	IPO /JV/ SA /M&A	Sustainability
Maturity or Exit, IPO, M&A stage	Returns	Public Market	Profitability

Finance plays a very important role, almost like oxygen.
For the concept or idea stage, the risk is the idea being copied by someone. So one has to protect the idea and act fast. 30% start-ups die at this stage.

At Validation stage, self-belief is the most important aspect and generally over 40% start-ups give up at this stage.

Once the concept is accepted and a prototype has been launched, then sustenance is the key; one has to prove the start-up is a commercial venture and profitable business. Always keep in mind that a start-up is being done for scale and without scale you will not be able to attract any investor.

My experience shows that only 10% start-ups pass the valley of death phase and reach the scaling stage.

Government of India schemes for food start-ups:

Start-up India is a flagship program for the Government and thus there are many schemes for supporting start-ups
Some key schemes and support:
• Start Up India
• Atal Innovation Mission (AIM)
• NewGen Innovation and Entrepreneurship Development Centre (NewGen IEDC)
• Dairy Entrepreneurship Development Scheme promoted by National Bank for Agriculture and Rural Development (NABARD)
• Venture Capital Finance Assistance (VCA) Scheme promoted by Small Farmers' Agri-Business Consortium (SFAC)
• India Aspiration Fund

Over and above, every state has launched many schemes to increase start-ups in the respective state in the area of food and agriculture.

FSSAI's Contribution toward start-ups:

In conjunction with the Government's initiative on 'Start-Up India' and 'Digital India', FSSAI (Food Safety and Standards Authority of India) is bringing together innovators and start-up entrepreneurs to provide innovative solutions and transform the country's food safety and nutrition landscape.
FSSAI has started project FINE : Food Innovator Network (https://fssai.gov.in/fine/) and also initiated the Fostac Plus course

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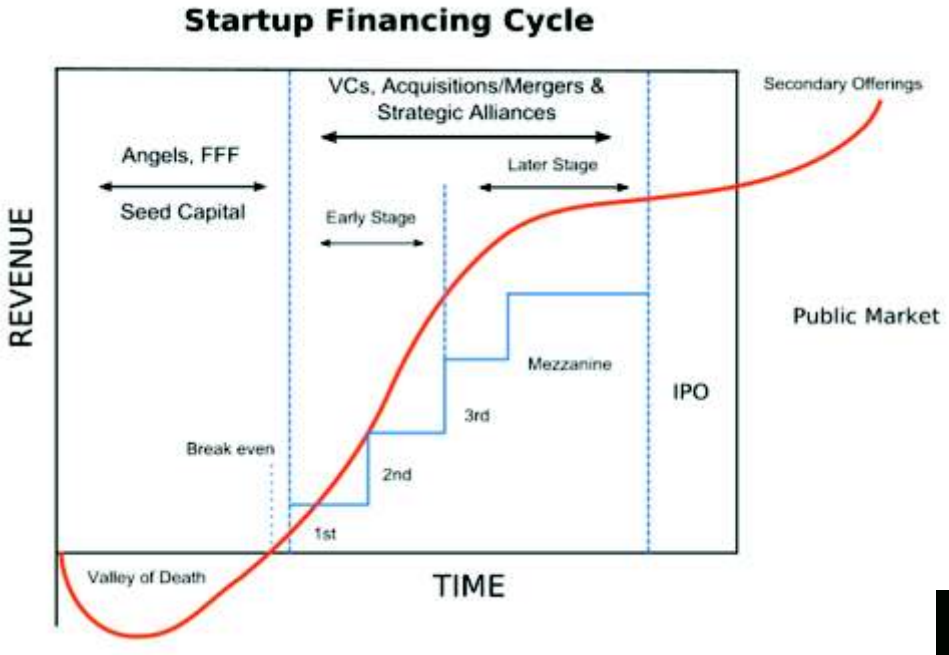

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FSSAI has started project FINE : Food Innovator Network (https://fssai.gov.in/fine/) and also initiated the Fostac Plus course especially for start-ups. Through program FINE, FSSAI is extending support to start-ups, giving one point help to start-ups for accelerators, Content partners, Lab professionals, mentors, government schemes etc. If you are interested to connect with FSSAI for Start-up Incubator programs you can contact -https://fssai.gov.in/fine/register.php

Nutraceutical Regulations by FSSAI have brought in newer opportunities especially in health foods and nutraceuticals. Several types of foods are regulated under these e.g. Health Supplements, Nutraceuticals, Foods for Special Dietary Use, Foods for Special Medical Purpose, Probiotic Foods, Prebiotics, Specialty Foods and Novel Foods.

I am a National Level resource person for Fostac Plus for start-ups and through FSSAI we have conducted two programs and trained over 100 start-ups and Master trainers.


Image © iStock.com/FatCamera

AFST support for Start-ups

Association of Food Scientists and Technologists of India (AFST) is also supporting start-ups especially in Mumbai, Hyderabad, Chennai and Delhi where our Chapters are creating good initiatives. Through our AFST network we are supporting over 250 start-ups and many AFST members are extending support without any cost.

Conclusion:

To feed the 1.3 billion population of India, the food industry will play an important role and for bringing innovative and practical products and services, food start-ups are crucial for the country's growth.

Though there are various schemes and support available for start-ups, strong ideas and persistent efforts are key drivers for a start-up's success.

Unfortunately in food processing, less than 10% start-ups cross stage three of the start-up cycle (scalability). Though the overall economy is favourable for food start-ups we should all support the system and help these tiny start-ups to excel and grow.

Food start-ups are beneficial for a farmer's economy since it values the farm products and also from an employability point of view, for a populous country like India Food start-upsare very important for the country's growth.

Thus if you know any food start-up help them grow with your wisdom and support the food industry in India.

(Author is immediate past President AFST India and involved in start-up support from last 4 years and has supported over 250 start-ups directly and indirectly)

References

https://fssai.gov.in/fine/register.php

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As food industry professionals, we all are very well aware of the famous quote by Hippocrates- "Let Food be thy Medicine, and Medicine be thy Food"
It is one of the oldest medical prescriptions offered to human populations!

Today we do have sufficient evidence and scientific knowledge to understand that most chronic diseases don't develop overnight, and that the borders between health and disease are often not sharp! This holds particularly true for the diseases associated with lifestyle and ageing. Thus in the present time, we are facing a renaissance of nutrition and lifestyle for disease management.

Most of the consumers today have nutrition awareness, are well- read and well-travelled. To make the buying decision, the major parameters for an aware consumer are not just the price, but also the convenience, taste, product quality and of course, nutrition provided by a particular product on the shelf.

This has promoted the rapid development of a new food market in recent years: the functional food market.

Amongst a plethora of functional foods available for various health benefits, one product that has gained much interest of consumers recently is the dietary fiber. Fiber is generally grouped by its physical properties and is called soluble, insoluble or resistant starch. All three types of fiber have important roles to play.

The soluble fibers include inulin, oligofructose, polydextrose, polyols, mucilage, beta-glucans, pectin and gums. The insoluble fibers include cellulose, hemicellulose and lignins. Resistant starch develops during the heating and then cooling of some foods such as potato and rice.

Regulatory status of Dietary fibers

Till now the dietary fiber definition was ambiguous, and insoluble fiber was not mentioned in International Guidelines like USFDA or CODEX. The standards were established only for soluble fibers like fructo oligosaccharides, pectin, inulin etc.

Recently in June 2018, US FDA has issued a new guidance for the food industry – The Declaration of Certain Isolated or Synthetic Non-Digestible Carbohydrates as Dietary Fiber on Nutrition and Supplement Facts Labels. A new category i.e. Mixed Plant Cell Wall Fibers has been identified, which encompasses a number of fiber ingredients, i.e., cellulose, hemicelluloses, and pectin, as well as lignin.

Some examples of mixed plant cell wall fibers identified by FDA are apple fibers, oat fibers, wheat fibers, bamboo fibers, barley fibers, carrot fibers, citrus fibers, cocoa fibers, corn fibers, cotton seed fibers, pea fibers, rice bran fibers, soy fibers, sugar beet fibers and sugarcane fibers. These classes of Functional fibers are extracted from their natural sources, and then added to supplements or fortified foods and drinks to boost their fiber content.

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

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*Source: The Times of India, July 2017

Loggerheads_2018

Utilization of Dietary Fibers in Food Industry

To be acceptable to manufacturers in the industry, a dietary fiber added to a food product must perform in a satisfactory manner as a food ingredient, providing some functional benefits along with nutritional quality of the food product.

From a functionality perspective, Dietary fibers can provide a multitude of functional properties when they are incorporated in food systems, as a tool for improving texture; as a bulking agent in reduced-sugarapplications; to manage moisture in the replacement of fat; to add color, and as natural antioxidant. The addition of fibers contributes to the modification of the texture, and improve sensory characteristics and shelf-life of foods due to their water binding capacity, gel-forming ability, fat mimetic, anticaking, texturizing and thickening effects.

Insoluble dietary fibers like wheat fiber, oat fiber and apple fiber with varying fiber lengths have an established application in food products categories like baked goods, ready to cook, heat and eat products, frozen formed products, extruded snacks, breakfast cereals, ethnic sweets, meat and pasta.

Most commonly, dietary fibers are incorporated into bakery products to prolong freshness, thereby reducing economic losses. Fibers modify bread loaf volume, thus giving better yield, improves springiness, softness of the bread crumb and the firmness of the loaf. In eggless cakes, insoluble dietary fibers reduce the crumbling and improves the texture of the cake. The addition of fibers to bakery products like cookies also improves their nutritional quality since it makes possible to decrease the fat content, without loss of quality. Such fibers when used in ready to cook premixes like idli/ dosa/ dhokla premixes etc. impart softness to the cooked product.

In the frozen formed products like nuggets, patties etc., insoluble fibers impart freeze thawing stability, prevents formation of bigger ice crystals and prevents cracking of surface, and also prevents excess oil uptake during deep frying. In extruded snacks, incorporation of insoluble fibers at a very less dosage gives important benefits like increased structural strength and even pore size, thus reducing production losses and breakages during transportation. When used in formed meat products, dietary fiber improves cooking yield, water binding, and fat binding, while providing a desirable juicy texture.

In the case of beverages and soups, the addition of dietary fiber increases their viscosity and stability, soluble fiber being the most used because it is more dispersible in water than insoluble fiber. The use of soluble fibers in dairy products is also widespread: e.g., inulin introduces numerous improvements into dairy products. It improves body and mouthfeel in cheese analogues or ice cream, and reduces syneresis in yoghurt and other fermented milk products. For the elaboration of jams and marmalades, the most commonly added-fibers are pectins with different degree of esterification, which help in keeping the stability of the final product.

It can be concluded that consumers today have different expectations with relevance to ever widening choices, changing scenario of food availability and new technologies. Development of dietary fiber incorporated products has been an important advancement in this regard. The enrichment of foods with dietary fibers is an effective way to enhance nutritional and physiological aspects and to promote functionality by influencing rheological and thermal properties of the final product.

The need of the hour is to develop further technologies and clear regulatory insights to make more dietary fibers available - both soluble and insoluble ones, from various fruit/ vegetable/cereal sources, thus enabling the industry to put this important nutrient into appropriate use.


Image © iStock.com/marilyna

HEALTHY FIBRE BALANCE!

By

Lars Erik Hansson,
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Image © iStock.com/Romariolen

We are in general aware of the health benefits of higher fibre intake; how-ever, more unknown is why different fibres have various advantages for our cardiovascular and digestive health.

Already in the 1980´s it was proven that dietary fibre have positive impact on the human body. The trend was clear, the amount of digestive disorders e.g. constipation and even worse colon cancer, had increased over a period of time as eating habits changed.

Ethnic groups still consuming plenty of fibre in their daily diet didn´t show the same symptoms.

Scientists also showed fibre could reduce the bad LDL cholesterol and stabilize blood sugar after meals.

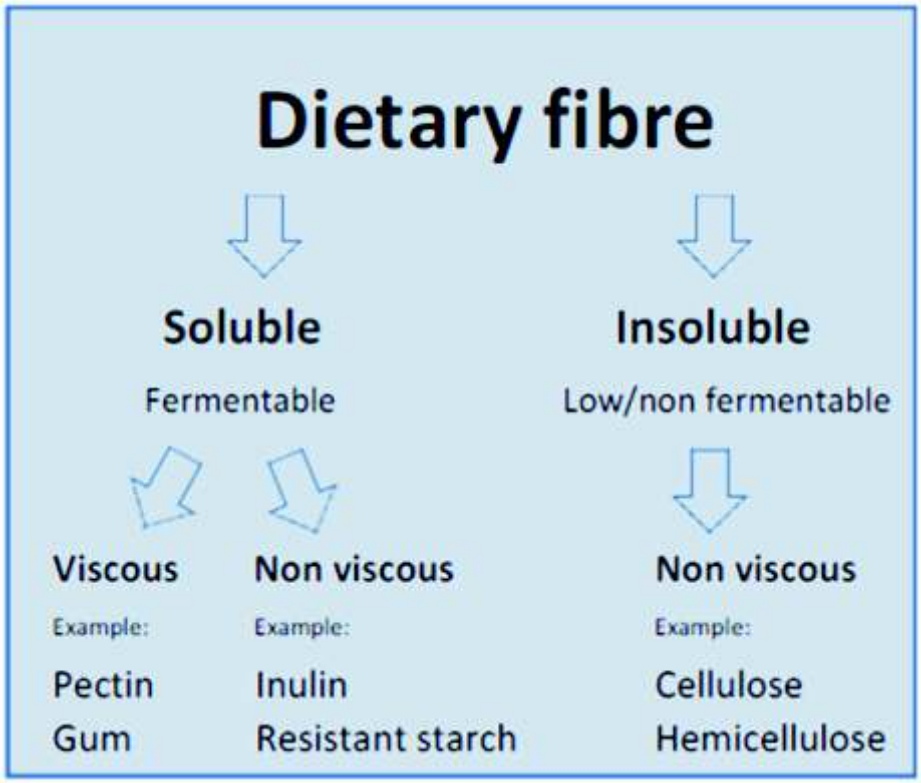
Later studies confirm those conclusions and explains the effects more in detail. Today scientists agree that our body needs about 25 grams/day of dietary fibre to work properly.

This level is not easy to achieve within the ordinary food con-sumed, added fibre is an effective way to e.g. provide regularity in bowel move-ments, promote satiety and improve overall well-being.

Soluble vs. Insoluble fibre

Dietary fibres are commonly divided into soluble or insoluble fibres. Most soluble fibres are metabolized by the microflora in the large intestine and produce short chain fatty acids (SCFA) such as acetate and butyrate which contributes to lowering se-rum cholesterol levels.

SCFAs feed the healthy bacteria, which assist to protect the colon mucosa. They can also reduce the risk of colorectal cancer by enhanced fermentation in the large intestine, leading to production of high levels of SCFA. Butyric acid is reported to promote cell dif-ferentiation and inhibit production of secondary bile acids by reducing luminal pH, resulting in reduction of risk of malignant changes in cell.



For blood glucose the soluble fibre lowers the post-prandial glucose peak, which leads to de-creased insulin demands and protects exhaustion of the pancreas.

The insoluble part also absorbs water and keeps the stomach and colon acti-vated since it passes the system almost intact, counteracting constipation and promoting regularity. Inflammatory conditions can be prevented as waste products collected in pockets within the gut system will be rinsed out.

Waste matter in the colon can form toxins and the longer it stays the greater the risk for developing harmful diseases. To maintain a good digestive process, it is highly recommended to drink more water when adding fibre into the diet.

A Balanced Mix

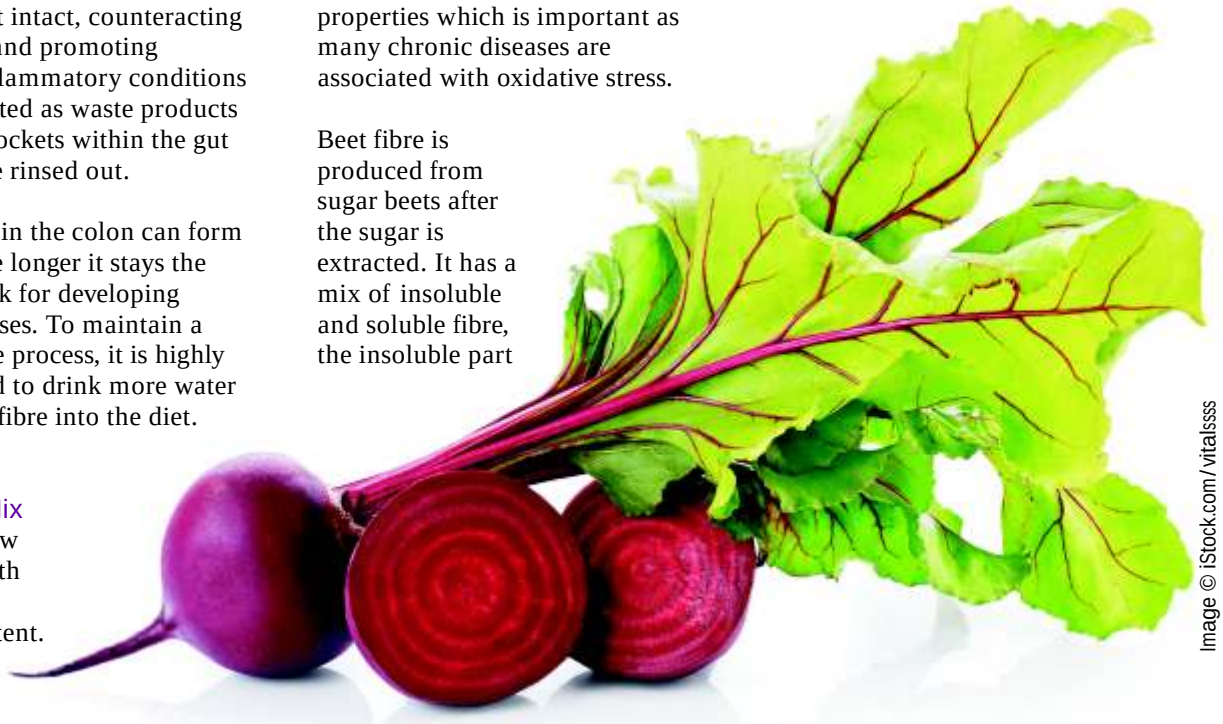
There are a few fibres with both soluble and insoluble content.

Beet fibre is probably the most well documented as it has been used as standard fibre in many studies, both nutritional and func-tional. Numerous clinical studies for this fibre confirms the criteria mentioned above for cardio-vascular and digestive health. It is also shown to have antioxidant properties which is important as many chronic diseases are associated with oxidative stress.

Beet fibre is produced from sugar beets after the sugar is extracted. It has a mix of insoluble and soluble fibre, the insoluble part is mainly hemicellulose and the soluble part pectin. Total fibre content is 67 % (AOAC) and Protein 8 %. The fi-bre is free from phytic acid, which could act as mineral blocker, and gluten free.

Beet fibre has EU health claim on increased bulk effect. The homogeneous net-work of polysaccharides gives a high micro porosity and water retention capac-ity, resulting in high fermentability by human gut bacteria and increasing fecal output. Pectin has two EU approved claims – to normalize the bad LDL choles-terol and stabilize blood sugar after meal.

The ratio of fibre content in Beet fibre is 1/3 soluble and 2/3 insoluble, a healthy fibre balance for our daily well-being. Heat stable water-holding con-tributes to give a number of functional properties in various foods – fresh hold-ing in bakery products and reduction of frying loss in vegetable or minced meat dishes to mention a few examples. It simply works!



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REGULATORY ROUND UP

By
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Dear Readers

Please find below the summary and the link to regulations, order, etc published by FSSAI since the last round up. The wait for the "Labelling and Display" regulation is getting longer though there was a news item that draft regulation would be published soon. The EAT-Lancet Commission's 'Food Planet Health' report was formally released for India. The report focuses on healthy diet from sustainable food systems. It is a lengthy report which gives solutions to feed the ever-increasing population with healthy diet, through sustainable ways. I promise to give the readers an executive summary in the next round up.

Draft amendments in Packaging and Labelling regulation with regard to AGMARK seal on light black pepper

Draft amendments in Prohibition and Restriction on Sales Regulation. The amendment proposes to arm FSSAI with the authority to dispense with mandatory BIS certification in case of Infant formula, Follow up formula, Skimmed milk powder, Packaged drinking water, etc. The intention of this amendment is not very clear

Draft regulation listing permitted health claims in vegetable oils like coconut oil (Contains medium chain fatty acids that are easily metabolized.), Flax seed oil (Rich in Omega-3 Poly Unsaturated Fatty Acid (Omega-3 PUFA, Alpha linolenic acid), Olive Oil/Olive Pomace Oil/Extra virgin Olive oil (Rich in Mono unsaturated fatty acids (MUFA) that helps Lowering LDL Cholesterol), etc. No threshold levels are specified for such claims. Apparently, these claims are related to stand alone vegetable oils. The products, in which the fat content is above the threshold limit, may have to declare a warning. A paradoxical situation – pure vegetable oil will carry health claims and the same in a product a "warning".

Draft regulation amending the standards of Squash, Cordial, Crush, Sherbat, etc

An FSSAI directive exempting the small farmers (Turn over less than Rs 12 lakhs per annum), selling their organic produce directly to the end consumer, from organic certification by NPOP/ PGS-India

FSSAI published FAQ on Alcoholic Beverages Regulation, 2018 with regard to labelling, warnings, declaration of alcohol percentage in beer, etc

Food Authority's warning against the use of calcium carbide for ripening of fruits

RESEARCH IN HEALTH & NUTRITION

Image © iStock.com/Deepak Sethi

Are Added Sugars to Blame for Fatty Liver Disease in Children?

Nutraceuticals World 01.24.19

A randomized clinical study of adolescent boys with nonalcoholic fatty liver disease (NAFLD) found that a diet low in free sugars (those sugars added to foods and beverages and occurring naturally in fruit juices) resulted in significant improvement in NAFLD compared to a usual diet.

The study was conducted at Emory University School of Medicine and the University of California San Diego School of Medicine (UC San Diego) and published in JAMA on Jan. 22.

NAFLD is the most common liver disease in children, and it significantly increased from 1988 to 2010. NAFLD is associated with increased risk of type 2 diabetes, end-stage liver disease, liver cancer and cardiovascular disease, thus diagnosis and prompt treatment is very important to long-term health.

Miriam Vos, MD, MSPH, professor of pediatrics at Emory and director of the Pediatric Fatty Liver Program at Children's Healthcare of Atlanta, was senior author of the study and Jeffrey B. Schwimmer, MD, professor of clinical pediatrics at UC San Diego was first author.

"Although pediatric guidelines for managing non-alcoholic fatty liver disease recommend a healthy diet, focused reduction of sugary foods and beverages was an unproven treatment," said Dr. Vos. "Our results show that if a child with NAFLD consumes a very low amount of sugars in their diet, both fat and inflammation in the liver improves. We are excited by the highly significant results but also realize that a longer study will be needed in order to understand if sugar reduction is sufficient to 'cure' NAFLD."

The clinical study, conducted from August 2015 to July 2017, included 40 boys ages 11 to 16 years with NAFLD, 95% of whom were Hispanic. The participants were randomized into two groups. Half the boys, along with their families, were provided a diet low in free sugars (less than 3% of daily caloric intake), and half ate their usual diets. Twice-weekly telephone calls assessed adherence to the diet. The boys with a reduced free sugar diet had a reduction in NAFLD from 25% to 17%, while the boys with a usual diet had a reduction in NAFLD from 21% to 20%. Reducing free sugars in the diet involves decreasing glucose, fructose, and sucrose commonly consumed in sweetened foods and beverages and in naturally sweet fruit juices.

The primary outcome measured was change in hepatic steatosis, estimated by magnetic resonance imaging proton density fat fraction measurement—a precise, state-of-the-art method to quantify lipids in liver. Twelve secondary outcomes also were measured, with several having significant changes as well. The decrease in alanine aminotransferase level (a test used to measure liver enzymes and liver function) was significantly greater for the intervention diet group than for the usual diet group, and decrease in cholesterol levels was significantly greater in the intervention group. In addition, adherence to the diet was high, with 18 of 20 participants/families reporting intake of fewer than 3% of calories from free sugar during the intervention. There were no adverse events related to participation in the study.

"Despite the counseling provided by physicians to patients and families, implementing an effective sugar-reducing diet, along with long-term adherence and sustainability are often very challenging," said Dr. Schwimmer. "Our study shows that children and their families can follow a diet low in free sugars for up to eight weeks when the research team plans, purchases and provides all meals. Although this would not be widely practical, it shows that this kind of intervention reduces NAFLD biomarkers at least in the short term."

The authors noted that further studies will be needed to demonstrate longer-term clinical benefit in both girls and boys and all ethnicities, and to solve the challenges of implementing a low free sugar diet for patients in clinical practice.

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Vitamin K2 Status Linked to Brain and Eye Health

Nutraceuticals World 01.11.19

The Journal of Alzheimer's Disease and Scientific Reports recently published papers that examined the role of aortic stiffness due to calcification as a contributing factor to dementia and retinal arteriolar health, respectively.

Both conditions are impacted by the status of active Matrix Gla Protein (MGP), the most potent inhibitor of vascular calcification (once activated by vitamin K2 as MK-7), the mechanism by which K2 is now recognized as a cardiovascular protector, and MenaQ7 from NattoPharma is the only vitamin K2 as MK-7 clinically validated and patented for cardiovascular health.

According to "Aortic stiffness associated with Increased Risk of Dementia in Older Adults," cardiovascular disease risk factors, including age, hypertension, and diabetes, contribute to aortic stiffness and subclinical cardiovascular and brain disease, increasing dementia risk. Aortic stiffness, measured by carotid-femoral pulse wave velocity (cfPWV), reduces the buffering of pulsatile blood flow, exposing cerebral small arteries to microvascular damage. The paper goes on to question whether interventions to slow arterial stiffening (such as K2 supplementation) can reduce the risk of dementia.

Meanwhile, the paper "Inactive matrix Gla protein is a novel circulating biomarker predicting retinal arteriolar narrowing in humans" examined how active MGP, "a potent inhibitor of calcification in large arteries, protects against macrovascular complications." The paper states that "recent studies suggested that active MGP helps maintaining the integrity of the renal and myocardial microcirculation, but its role in preserving the retinal microcirculation remains unknown."

Studying a randomly recruited Flemish population, the researchers concluded that circulating inactive MGP (dp-ucMGP) is a long-term predictor of smaller retinal arteriolar diameter in the general population. "Our observations highlight the possibility that vitamin K supplementation might promote retinal health," they stated.

"Vitamin K2 as MK-7 is the only compound to date shown to impact arterial calcification through its activation of MGP, which is why it is garnering attention from the medical community as a potential therapy," said Christopher Speed, senior vice president of global sales and marketing with NattoPharma. "Our branded vitamin K2, MenaQ7, is the only K2 on the market clinically proven to impact cardiovascular health through its activation of MGP, and the only K2 patented for cardiovascular health.

"We at NattoPharma are optimistic that these developments have come to light," Mr. Speed continued. "There are 17 K-dependent proteins in the body, and we have a strong understanding of a few, which contribute to blood clotting, bone health, and cardiovascular health. These findings shine a light on the importance of continuing our research to articulate the health benefits of activating additional proteins and the impact that can have on the global population."

Large Meta-Analysis Backs Benefits of Probiotic for Gut Health

Nutraceuticals World 01.11.19

A systematic review and meta-analysis was recently published in the World Journal of Clinical Cases that assess the effects of probiotic preparation Medilac-S (Enterococcus faecium Rosell-26 and Bacillus subtilis Rosell-179), as adjunctive therapy in ulcerative colitis patients.

Involving 53 randomized clinical trials and close to 4,000 patients altogether, this robust meta-analysis concluded that, when used with conventional drugs, this probiotic significantly improved chances of clinical remission by 21%, improved symptoms of the gastrointestinal tract, and reduced the risk of side-effects from anti-inflammatory drugs, as compared to the drug alone.

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Dr. Thomas Tompkins, research director for Lallemand Health Solutions and co-author of the study explained, "Until now, reviews conducted on the efficacy of probiotics as ulcerative colitis adjunctive therapy were difficult to interpret due to the lack of homogeneity in the trials analyzed. The present study is quite robust and consistent since it involves the largest number of randomized control trials (53), homogenous in terms of trial design, disease state, probiotic formulation used, and population. We closely analyzed risk of bias for all studies. It is probably the strongest meta-analysis conducted so far with a single probiotic formulation." He added, "Not only the analysis showed significant outcome in terms of gut health support, but also a reduction of the incidence of the side effects induced by anti-inflammatory drugs, suggesting a role for this probiotic in the prevention of 5-ASA side effects."

SolangeHenoud, regulatory affairs director for Lallemand Health Solutions, added, "Medilac-S has continuous records of sale as a drug in China for over than 30 years, where it is well-known and trusted by consumers and healthcare professionals. In other instances, the safety and quality of the strains have been successfully demonstrated or notified with non-objection to other competent authorities in the three continents of America, Europe, and Asia."

Ulcerative colitis is an inflammatory bowel disease of the colonic gastrointestinal tract that is steadily increasing across the globe. Conventional treatments include anti-inflammatory drugs. In China, where the disease is growing rapidly, probiotics, and in particular Medilac-S formula has been used as adjuvant therapy for many years. The 53 clinical trials included in the meta-analysis span from 2007 to 2017.

Potential mechanisms of action of the probiotic formula to explain the adjuvant effect include improvement of the gut microbiota balance, immune-modulatory effects, protection against undesired microorganisms that may trigger a recurrence, also, as recently suggested, a role of certain probiotics in drug pharmacokinetics.

Microbiome holds potential for treating milk allergy, mice study finds

16 Jan 2019 Nutrition Insight

Gut microbes from healthy infant donors transplanted into mice prevented allergic reactions to milk, while gut microbes from infant donors with milk allergies failed to do the same, according to a Chicago University study.

Supported by the US National Institutes of Health (NIH) and published in Nature Medicine, the study findings suggest that gut microbes can significantly affect allergic responses to foods.

The researchers found that infants who are allergic to milk have different compositions of gut microbes compared to non-allergic infants. Previous studies have revealed that certain microbes are linked to lower risk of food allergy development, leading the researchers to further examine if gut microbes of infants without milk allergies could work protectively against milk allergy. Allergy to cow's milk should not be confused with lactose intolerance, as the latter is not a food allergy, according to the US National Institute of Allergy and Infectious Diseases. Intolerance to a food product means the host has an abnormal response to it, such as uncomfortable gas build up, but a food allergy denotes a severe and sometimes life-threatening reaction of the immune system to the food.

In the study, gut microbes from eight human infant donors were transplanted into groups of mice sensitized to milk protein, meaning the mice's immune systems created allergic antibodies to milk. The researchers later exposed the mice, who received no microbes or received microbes from infants with milk allergy, to milk. These mice experienced anaphylaxis, a potentially life-threatening allergic reaction.

However, repeating the process with mice who received microbes from non-allergic infants resulted in this group showing no reactions to milk.

Further analysis of the infant donors' stool samples revealed many differences between the allergic and non-allergic to milk groups. The mice treated with microbes from healthy infants harbored a family of microbes that is touted as shielding against the development of food allergies.

The researchers found that one particular microbe, Anaerostipescaccae, prevented the development of milk allergy when transplanted alone into groups of mice. Then they sampled cells from the mice's gut linings, where food allergies in mice and humans develop.

The study revealed that mice who received microbes from non-allergic infants expressed different genes compared to those that did not, suggesting that microbes residing in the gut impact the host's immune system. The study concludes that intestinal microbes play a critical role in regulating allergic responses to food and suggest that further research could lead to microbiome-modifying therapies to prevent or treat food allergy.

Allergy to cow's milk is globally the most common food allergy in infants and young children. About 2.5 percent of children under three years old are allergic to milk. Nearly all infants who develop an allergy to milk do so in their first year of life.
Food allergies are an increasing concern for consumers and a recent cross-sectional study survey published in JAMA Network Open, revealed that almost one in five US adults believes that they have food allergies, despite data showing that one in ten actually has one.

Metabolic syndrome patients need more vitamin C to break cycle of antioxidant depletion

Science Daily January 2, 2019

A higher intake of vitamin C is crucial for metabolic syndrome patients trying to halt a potentially deadly cycle of antioxidant disruption and health-related problems, an Oregon State University researcher says.


Image © iStock.com/ ljubaphoto

That's important news for the estimated 35 percent of the U.S. adult population that suffers from the syndrome.
"What these findings are really saying to people as we move out of the rich-food holiday season and into January is eat your fruits and vegetables," said MaretTraber, a professor in the OSU College of Public Health and Human Sciences and Ava Helen Pauling Professor at Oregon State's Linus Pauling Institute. "Eat five to 10 servings a day and then you'll get the fiber, you'll get the vitamin C, and you'll really protect your gut with all of those good things."

A diet high in saturated fat results in chronic low-grade inflammation in the body that in turn leads to the development of metabolic syndrome, a serious condition associated with cognitive dysfunction and dementia as well as being a major risk factor for cardiovascular disease, fatty liver disease and type 2 diabetes. A patient is considered to have metabolic syndrome if he or she has at least three of the following conditions: abdominal obesity, high blood pressure, high blood sugar, low levels of "good" cholesterol, and high levels of triglycerides.

Findings published in Redox Biology suggest the type of eating that leads to metabolic syndrome can prompt imbalances in the gut microbiome, with impaired gut function contributing to toxins in the bloodstream, resulting in vitamin C depletion, which subsequently impairs the trafficking of vitamin E. It's a treadmill of antioxidant disruption that serves to make a bad situation worse; antioxidants such as vitamins C and E offer defense against the oxidative stress brought on by inflammation and the associated free radicals, unstable molecules that can damage the body's cells.

"Vitamin C actually protects vitamin E, so when you have lipid peroxidation, vitamin E is used up and vitamin C can regenerate it," Traber said. "If you don't have the vitamin C, the vitamin E gets lost and then you lose both of those antioxidants and end up in this vicious cycle of depleting your antioxidant protection."
Lipid peroxidation is the oxidative degradation of polyunsaturated fatty acids that are a major component of living cells; it's the process by which free radicals try to stabilize themselves by stealing electrons from cell membranes, causing damage to the cell.

"If there's too much fat in the diet, it causes injury to the gut," Traber said. "Bacterial cell walls can then leak from the gut and slip into circulation in the body, and they're chased down by neutrophils." Neutrophils are the most abundant type of white blood cells, a key part of the immune system. Neutrophils attack bacteria with hypochlorous acid: bleach.

"The white blood cells are scrubbing with bleach and that destroys vitamin C," Traber said. "The body is destroying its own protection because it got tricked by the gut dysbiosis into thinking there was a bacterial invasion." And without intervention, the process keeps repeating.

"People with metabolic syndrome can eat the same amount of vitamin C as people without metabolic syndrome but have lower plasma concentrations of vitamin C," Traber said. "We're suggesting that's because this slippage of bacterial cell walls causes the whole body to mount that anti-inflammatory response." Vitamin C is found in fresh vegetables and fruits; sources of vitamin E include almonds, wheat germ and various seeds and oils. Federal dietary guidelines call for 65 to 90 milligrams daily of vitamin C, and 15 milligrams of vitamin E.

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

Science Daily January 10, 2019

People who eat higher levels of dietary fibre and whole grains have lower rates of non-communicable diseases compared with people who eat lesser amounts, while links for low glycaemic load and low glycaemic index diets are less clear.

Observational studies and clinical trials conducted over nearly 40 years reveal the health benefits of eating at least 25g to 29g or more of dietary fibre a day, according to a series of systematic reviews and meta-analyses published in The Lancet.

The results suggest a 15-30% decrease in all-cause and cardiovascular related mortality when comparing people who eat the highest amount of fibre to those who eat the least. Eating fibre-rich foods also reduced incidence of coronary heart disease, stroke, type 2 diabetes and colorectal cancer by 16-24%. Per 1,000 participants, the impact translates into 13 fewer deaths and six fewer cases of coronary heart disease. In addition, a meta-analysis of clinical trials suggested that increasing fibre intakes was associated with lower bodyweight and cholesterol, compared with lower intakes.

The study was commissioned by the World Health Organization to inform the development of new recommendations for optimal daily fibre intake and to determine which types of carbohydrate provide the best protection against non-communicable diseases (NCDs) and weight gain.

Most people worldwide consume less than 20 g of dietary fibre per day. In 2015, the UK Scientific Advisory Committee on Nutrition recommended an increase in dietary fibre intake to 30 g per day, but only 9% of UK adults manage to reach this target. In the US, fibre intake among adults averages 15 g a day. Rich sources of dietary fibre include whole grains, pulses, vegetables and fruit.

"Previous reviews and meta-analyses have usually examined a single indicator of carbohydrate quality and a limited number of diseases so it has not been possible to establish which foods to recommend for protecting against a range of conditions," says corresponding author Professor Jim Mann, the University of Otago, New Zealand. "Our findings provide convincing evidence for nutrition guidelines to focus on increasing dietary fibre and on replacing refined grains with whole grains. This reduces incidence risk and mortality from a broad range of important diseases."

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

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

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

The study also found that diets with a low glycaemic index and low glycaemic load provided limited support for protection against type 2 diabetes and stroke only. Foods with a low glycaemic index or low glycaemic load may also contain added sugars, saturated fats, and sodium. This may account for the links to health being less clear.

"The health benefits of fibre are supported by over 100 years of research into its chemistry, physical properties, physiology and effects on metabolism. Fibre-rich whole foods that require chewing and retain much of their structure in the gut increase satiety and help weight control and can favourably influence lipid and glucose levels. The breakdown of fibre in the large bowel by the resident bacteria has additional wide-ranging effects including protection from colorectal cancer." says Professor Jim Mann.

Image © iStock.com/marilyna

While their study did not show any risks associated with dietary fibre, the authors note that high intakes might have ill-effects for people with low iron or mineral levels, for whom high levels of whole grains can further reduce iron levels. They also note that the study mainly relates to naturally-occurring fibre rich foods rather than synthetic and extracted fibre, such as powders, that can be added to foods.

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

First, total carbohydrate intake was not considered in the systematic review and meta-analysis... Second, although the absence of association between glycaemic index and load with non-communicable disease and risk factors is consistent with another recent systematic review, caution is needed when interpreting these data, as the number of studies is small and findings are heterogeneous. Third, the absence of quantifiable and objective biomarkers for assessing carbohydrate intake means dietary research relies on self-reported intake, which is prone to error and misreporting. Improving the accuracy of dietary assessment is a priority area for nutrition research.

The analyses presented by Reynolds and colleagues provides compelling evidence that dietary fibre and whole grain are major determinants of numerous health outcomes and should form part of public health policy."

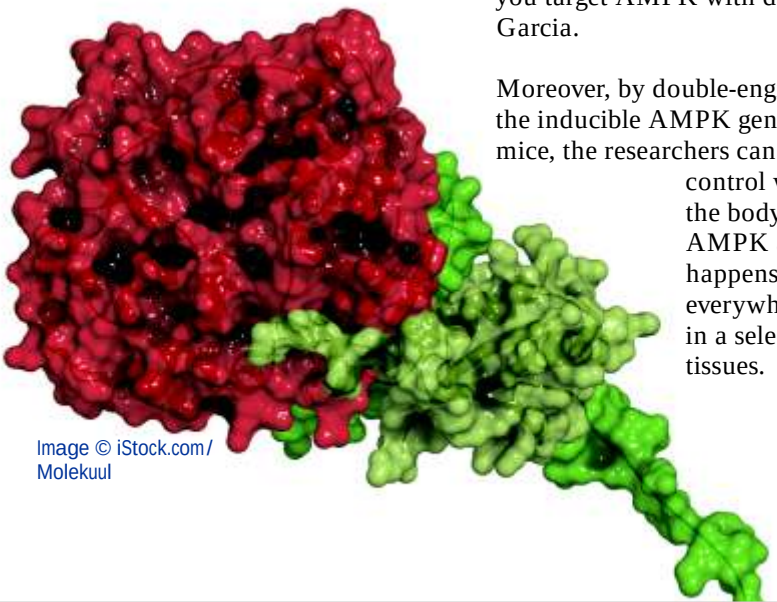
Health effects of metabolic 'magic bullet' protein

Science Daily January 15, 2019

The metabolic protein AMPK has been described as a kind of magic bullet for health. Studies in animal models have shown that compounds that activate the protein have health-promoting effects to reverse diabetes, improve cardiovascular health, treat mitochondrial disease -- even extend life span. However, how much of the effects of these compounds can be fully attributed to AMPK versus other potential targets is unknown.

Now, Salk researchers have developed a new system that lets them study in more detail than ever exactly how, where and when AMPK carries out its molecular and therapeutic functions. In the paper, published January 2, 2019 in the journal Cell Reports, the Salk team uses the new model to activate AMPK in the livers of adult mice with fatty liver disease.

"This model will allow us to answer questions that scientists could not answer before," says Salk Professor and Salk Cancer Center Director Reuben Shaw, who led the new work. "It really gives us a new way to define the health benefits of this specific enzyme in a wide variety of diseases."



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AMP-activated protein kinase, or AMPK, is known as a master regulator of metabolism. Cells activate AMPK when they are running low on energy, and AMPK is activated in tissues throughout the body following exercise or during calorie restriction. In response, AMPK alters the activity of many other genes and proteins, helping keep cells alive and functioning even when they're running low on fuel. In different tissues throughout the body and at different time points in development, AMPK likely has varying effects. Until now, the only way to study the specific impact of genetically increasing AMPK activity was to change its activity in an organism for its entire life, starting at embryogenesis.

"When AMPK is overactivated from the very beginning of embryogenesis, we don't know what effects it's having on normal development," says Daniel Garcia, a senior research associate at Salk and first author of the new paper. So Garcia, Shaw and their colleagues enabled a mouse to have a special version of AMPK that lets the researchers activate the gene by feeding the adult mouse an antibiotic. "The model we've developed is much more similar to what you would see in a clinic if you target AMPK with drugs," says Garcia.

Moreover, by double-engineering the inducible AMPK gene in the mice, the researchers can also control where in the body this AMPK activation happens -- everywhere, or just in a select tissue or tissues.

To test the utility of the new model, the researchers developed mice that could have AMPK activated in the liver. Then, they fed a subset of these mice high-fat diets leading to diet-induced obesity and an excess accumulation of fats in the liver. This condition is equivalent to nonalcoholic fatty liver disease (NAFLD) in humans, the leading form of chronic liver disease in American adults.

In both mice with and without NAFLD, levels of fats in the liver dropped when AMPK was activated -- new fat production was slowed and existing fats were metabolized.

Moreover, when AMPK was activated in mice that were fed a high-fat diet, the mice were protected against weight gain and obesity and had fewer signs of liver inflammation. "This paper confirms that AMPK is a good target for treating NAFLD," says Garcia. "It's further confirmation that AMPK activators should be tested clinically."

In addition to the effects on liver fat, AMPK activation -- even though it was limited to the liver -- also lowered levels of fats elsewhere in the body, suggesting that hormones released by the liver into the rest of the body were affected. "These results indicate that AMPK could potentially be a powerful treatment to a host of diseases in humans," says Shaw, who holds the William R. Brody Chair.

The researchers next plan to study AMPK activation in a plethora of other tissues, including muscles, where scientists have hypothesized AMPK could have a dramatic effect. "There are broader questions beyond NAFLD to ask about whether genetic activation of AMPK in muscle mimics exercise and whether activation of AMPK later in an organism's life can promote life span," says Shaw.


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Vitamin D could lower the risk of developing diabetes

Science Daily January 30, 2019

The benefits of vitamin D in promoting bone health are already well known.

A new study out of Brazil suggests that vitamin D also may promote greater insulin sensitivity, thus lowering glucose levels and the risk of developing type 2 diabetes. Results are published online today in Menopause, the journal of The North American Menopause Society (NAMS).

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

Of the women interviewed, 24 (3.5%) reported using vitamin D supplements. Vitamin D supplementation was found to be negatively associated with high glucose levels. Habitual exposure to the sun also provided the same association, demonstrating that vitamin D deficiencies are associated with high blood glucose levels. Study results appear in the article "Higher serum levels of vitamin D are associated with lower blood glucose levels."

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

Want healthier eating habits? Start with a workout

Science Daily January 30, 2019

In the latest evidence that it's worth sticking to your health-focused New Year's resolutions, researchers at the University of Texas at Austin have found that exercising regularly is linked to better eating habits.

The new study, published this week in the International Journal of Obesity, looked at 2,680 young adults who were not exercising regularly or dieting. Scientists found that after exercising for several weeks, formerly sedentary study participants were more likely to choose foods like lean meats, fruits and vegetables, while preferences for fried foods, sodas and other unhealthy options decreased.


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Participants were instructed not to change their diets in any significant way, but it happened anyway. Although this study did not examine the mechanism at work behind the changes, previous research has found that moderate exercise can reduce a preference for high-fat foods in animals through changes in dopamine levels. Several studies also have shown a relationship between the intensity of exercise and the amount of appetite-regulating hormones in the body. "The process of becoming physically active can influence dietary behavior," said Molly Bray, corresponding author of the paper and chair of the Nutritional Sciences department at UT Austin and a pediatrics faculty member at Dell Medical School. "One of the reasons that we need to promote exercise is for the healthy habits it can create in other areas. That combination is very powerful." Bray says what drives food-preference changes when people exercise would probably be consistent across a wide span of ages. The study examined people between the ages of 18 and 35, a period of young adulthood critical for forming healthy habits. Previous studies have found that considerable weight gain occurs during the college years and that being mildly to moderately overweight at age 20-22 increases the risk of obesity later in life.

"Many people in the study didn't know they had this active, healthy person inside them," Bray said. "Some of them thought their size was inevitable. For many of these young people, they are choosing what to eat and when to exercise for the first time in their lives."

The participants in the study were students at the University of Houston and the University of Alabama at Birmingham. Participants who said they exercised less than 30 minutes a week at the beginning of the study started 30-minute aerobic workouts three times a week for 15 weeks, with instructions not to change their diet in any significant way. The exercise sessions consisted of 30 minutes of aerobic exercise at 65-85 percent of the person's age- and gender-specific maximum heart rate, along with a 5-minute warmup and a 5-minute cool down. Participants wore heart-rate monitors and could choose from a variety of exercise types, such as on stationary bikes, treadmills or elliptical machines.

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 nonvegetarian 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 nonvegetarians 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 signi_cantly 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 nonvegetarian patients who underwent the surgery. When it came to the male patients, no signi_cant difference was found in the number of vegetarian and nonvegetarian patients throughout the entire study period.


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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 comorbidities 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 nonvegetarian 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."

Probiotics present 'new way' to fight Staph infections: US, Thai researchers

By Cheryl Tay 19-Dec-2018 – NutraIngredients Asia


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A certain strain of probiotic Bacillus bacteria can help eliminate the harmful bacteria Staphylococcus aureus, according to a joint population study by US and Thai researchers.

Live probiotic bacteria ingested through food intake are thought to be able to minimise intestinal colonisation by pathogens, thereby lowering the body's susceptibility to infection. One such bacteria is B. subtilis , which is often found in vegetables and probiotic digestive supplements. It is said to be effective against S. aureus , a type of bacteria that can cause severe antibiotic-resistant infections. Despite this, the underlying mechanisms behind its effects against S. aureus are still unclear.

Colonisation and exclusion

Based on this, researchers from the National Institutes of Health in the US, as well as Thailand's Mahidol University and Rajamangala University of Technology, conducted a study on a rural Thai population to assess the effects of B. subtilis against S. aureus colonisation. They recruited 200 healthy individuals, all from rural areas in Thailand so they could rule out the food sterilisation and antibiotic usage common in most urban areas, which could potentially reduce the abundance of probiotic bacteria in the participants' food and intestinal tracts.

They then collected faecal samples from all the participants for analysis, and reported that 101 samples tested positive for Bacillus — primarily B. subtilis , At the same time, 12.5% of them were carrying S. aureus in their intestines. Interestingly, the presence of Bacillus bacteria was correlated with the absence of S. aureus in the faecal samples.

The researchers added, however, that the results showed "no substantial high-order taxonomic differences in the microbiome composition between S. aureus carriers and non-carriers" , leading them to hypothesise that the Bacillus isolates produced a substance that "directly and specifically" impeded intestinal colonisation by S. aureus .

Mediation in the mouse microbiome

The researchers then conducted a mouse study with similar primary outcomes, and discovered that in order for S. aureus to successfully grow in the mice's guts, a functioning sensing system was required. They found that all the 100-plus Bacillus isolates they had retained from the faecal samples obtained in the human study effectively inhibited that system.

Discoveries to aid in decolonisation?

The researchers stated that the current study provided evidence for a molecular mechanism through which probiotic bacteria in food could directly inhibit pathogenic colonisation, proving in particular the probiotic value of B. subtilis .

In conclusion, they wrote: "Our study suggests several valuable translational applications regarding alternative strategies to combat antibiotic-resistant S. aureus. First, the quorum- quenching fengycins — which previously had been known only for their antifungal activity — could potentially be used as quorum-sensing blockers in eagerly sought antivirulence-based efforts to treat staphylococcal infections. Second, Bacillus-containing probiotics could be used for simple and safe S. aureus decolonisation strategies. In that regard, it is particularly noteworthy that our human data indicate that probiotic Bacillus can comprehensively eradicate intestinal as well as nasal S. aureus colonisation. Such a probiotic approach would have numerous advantages over the present standard topical strategy involving antibiotics, which is aimed exclusively at decolonising the nose. Our findings suggest a probiotic-based method for S. aureus decolonisation, and new ways to fight S. aureus infections."

Probiotics and pathogenesis: How certain probiotic strains may benefit IBD patients

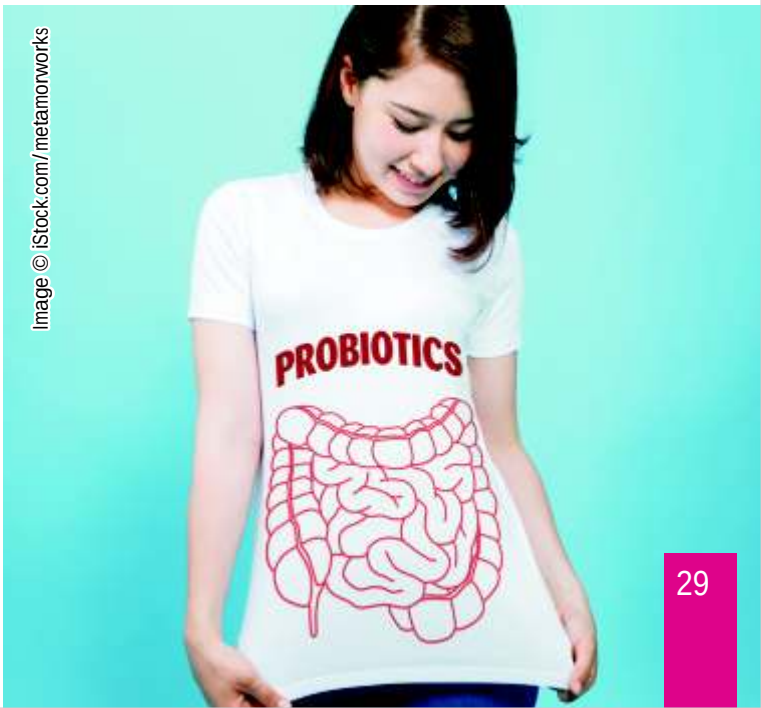
By Cheryl Tay07-Feb-2019 – NutraIngredients Asia

Certain probiotics may have a pathogenesis-specific effect on inflammatory reactions in inflammatory bowel disease (IBD) patients, according to a Chinese study.

While evidence from clinical trials and animal studies has been mounting as to probiotics' beneficial effects on IBD patients, the exact pathogenesis of IBD is still unknown. Researchers at Beijing's Capital Medical University searched multiple databases for relevant studies that drew comparisons between probiotics and control groups, selecting 10 studies involving 1,049 patients for assessment.

Disparity and equivalence

They performed meta-analyses of the remission, relapse and complication rate between the probiotic strain Escherichia c oli Nissle 1917 (EcN 1917) and mesalazine, an anti-inflammatory drug used to treat IBD. They observed that although both of them were safe for consumption and well tolerated, there was "no significant difference either in the EcN 1917 group or among patients treated with mesalazine" .



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They added experiment-control studies were generally used to test the difference between the probiotic strain and the drug. However, since mesalazine is considered the 'established gold standard therapy', the study results were meant to demonstrate the equivalence between EcN 1917 and mesalazine. Subsequently, the meta-analyses suggested that EcN 1917 was similarly efficacious in remission, relapse and complication rate when compared with mesalazine.

The researchers also compared the efficacy among IBD patients administered probiotics and placebo, and the combined results on efficacy in remission, relapse and complication rate did not present any significant difference between the two groups. At the same time, three types of probiotics — S boulardii , Lactobacillus GG and VSL#3 (a combination of the first two) — were assessed in the meta-analyses, necessitating subgroup analyses.

The researchers did not observe any difference in the remission rate of Lactobacillus GG , while VSL#3 was found to have a higher remission rate than that of the placebo group. When it came to the relapse rate in sub-group mate-analysis, both Lactobacillus GG and VSL#3 showed a similar result, though patients on placebo showed a higher relapse rate than those given VSL#3. Additionally, the frequency of complications was similar in all sub-groups, with side effects (including abdominal pain and bloating, diarrhoea and arthralgia) being relatively minor.

Alternative potential

The researchers stated that EcN 1917 and mesalazine were similarly efficacious, and that while S boulardii and Lactobacillus GG showed no advantage over placebo individually, VSL#3 presented a better outcome. The study's potential limitations included a high level of heterogeneity in the meta-analyses. In light of the sub-group analysis that was conducted, this could be attributed to the different types of meta-analyses the researchers used.

At the same time, the current study's small sample size of both reviewed articles and enrolled patients might have resulted in bias. The researchers added that several other parameters of the patients might have affected the outcome of the treatment, and increased the risk of flare-up. They added that future high-quality studies on different types of probiotics administered to IBD patients should be conducted.

In conclusion, they wrote: "According to its pathogenesis, the use of some types of probiotics could prevent the induction of inflammatory reactions in patients with IBD. EcN 1917 shows comparable efficacy and safety to mesalazine, and VSL#3 shows better effects than placebo. These probiotics could be considered as an alternative for patients with IBD."

Aged garlic for healthy ageing: Australian study reveals heart health benefits of supplement

By Cheryl Tay 05-Feb-2019 – NutraIngredients Asia

A recent Australian RCT has reported the positive effects of aged garlic extract on hypertension and other cardiovascular health markers and age-related conditions.

The 12-week study , published in Frontiers of Nutrition , investigated the effects of daily intake of Kyolic Aged Garlic Extract or placebo on 49 hypertensive patients, measuring changes in their blood pressure, arterial stiffness, inflammatory markers and gut microbiota.

They then reported that in the group supplemented with Kyolic, mean blood pressure was significantly reduced (10mmHg to 13.6mmHg systolic and 5.4mmHg to 7.7mmHg diastolic), compared to the placebo group. Other positive effects observed in the supplemented group included improvements in arterial stiffness, inflammatory markers and gut microbiota.

Under pressure

Speaking to NutraIngredients-Asia , lead researcher Dr Karin Ried said: “We’ve been researching Kyolic for the last 10 years, and we’ve found consistently that it can reduce blood pressure as well as standard blood pressure medication can. We have had patients in our trials with a blood pressure of 160/80, and Kyolic reduced this over three months to about 120/80 in some of them, who had each taken two capsules a day. This represents a significant reduction of 40mmHg systolic blood pressure.”

Ried, who is an associate professor at the National Institute of Integrative Medicine (NIIM) in Melbourne, added that she and her team at the NIIM had conducted four trials on Kyolic involving approximately 300 patients so far. These participants all had uncontrolled hypertension, meaning their blood pressure had not yet been lowered by standard medication at the time of these trials; some were on medication while others were not.


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While standard blood pressure medication does not work the same way for every hypertensive patient, Ried said 90% of the participants in these studies were responsive to Kyolic in terms of blood pressure reduction, suggesting that it had surpassed standard medication. The active ingredient S-allylcysteine (SAC) is responsible for Kyolic's effect on blood pressure, with the optimal daily intake amount per person being 1.2mg.

Ried added: "Kyolic does not have the same side effects standard blood pressure medications can have. Over 60% of patients on standard medication experience side effects — sometimes, it can be severe and require hospitalisation, which is rare, but many may experience dizziness or dry mouth. Kyolic does not have these side effects, though it may cause minor issues such as bloating in the first week of supplementation."

In addition, while standard blood pressure medication can also lower normal blood pressure, making it possible for a pre-hypertensive individual with normal blood pressure to have his blood pressure reduced to an unhealthy level, Kyolic merely normalises low and high blood pressure instead of lowering normal blood pressure. Ried further revealed: "In our first trial, which was published in 2010, we looked at pre-hypertensive patients, including those with normal blood pressure and those with high blood pressure. Kyolic did not reduce normal blood pressure significantly, whereas standard blood pressure medication can do so."

Components and compositions
However, she also cautioned against simply increasing the amount of garlic in one's diet, as garlic loses its active component allicin — which possesses anti-inflammatory and antioxidant properties — when cooked. Furthermore, an excessive intake of garlic itself can cause over-thinning of the blood, whereas Kyolic does not.

Ried said; "In previous trials, we've observed that Kyolic can also normalise cholesterol, as well as blood stickiness — this ensures the blood is not too thick or thin. A 2006 trial showed that Kyolic did not increase the risk of bleeding in patients on blood-thinning medication, who were each given 10g of Kyolic daily."

These findings hold great potential for the Australian population, among whom almost six million adults (33.7% of adults) suffer from hypertension. High blood pressure is also the leading risk factor for cardiovascular disease, and left uncontrolled, can result in heart attacks, stroke or kidney failure. While Kyolic is sold in capsule format in Australia, it is also available in liquid format in the US, where Wakunaga of America develops and sells the supplement. In Australia, Vitaco's Nutralife brand has the exclusive rights to Kyolic.

The heart of the matter
In addition to its normalising effects on blood pressure, Kyolic was also found to improve other cardiovascular health markers, such as arterial stiffness (i.e., how quickly blood flows through the arteries), inflammation and gut microbiota. Ried said, "One of the major findings in our latest trial is that Kyolic reduced arterial stifness. With age, it's normal for arteries to become stiffer. But in three months, Kyolic was able to reduce arterial stiffness by five years. This rejuvenates the arteries, making them more flexible and better able to take in more oxygen due to the slower blood flow, therefore improving aerobic fitness. For example, this leads to greatly improved recovery and general lung capacity in middle-aged people when they exercise."

She further said that even a person without high blood pressure or with a genetic pre-disposition to more flexible arteries can benefit from Kyolic, as the ageing process was bound to change the composition of one's arteries eventually. Recent research around the link between the gut microbiome and cardiovascular health and cognitive function lends further credence to the healthy ageing benefits of Kyolic.

Ried said, "We are the first in the world to have looked at the impact of Kyolic intake on gut health. Kyolic contains prebiotics, which help good bacteria to grow. We found in this trial that good bacteria — especially Lactobacillus and Clostridia — increased in the group supplemented with Kyolic, and their gut composition stayed the same even after they stopped taking the supplement. In the placebo group, there was no change in Lactobacillus or Clostridia but in another bacteria, which thrives on cellulose found in the placebo."

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"Lettuce be happy": Fruit and vegetables boost mental health, says UK study

Nutrition Insight 20 Feb 2019

The daily consumption of fruit and vegetables is not just good for our physical health but can also improve mental wellbeing, according to a longitudinal study from the University of Leeds, UK.

Increasing the frequency and quantity of consumption may also affect mental health. Although the association between mental health and fruit and vegetable intake appears to be strong, the researchers note more research is needed to determine whether this is causal.

The researchers combined the results of a previous Australian study with data from the UK Household Longitudinal study – which involves more than 40,000 UK households – to determine if there is a correlation between the consumption of fruit and vegetables alongside psychological improvements.

"The results were largely in line with a 2016 study on Australian data by Mujcic and Oswald, as well as other smaller scale studies. As such, they were not completely surprising, but it was still encouraging to see the relationship reproduced in the large UK panel data we had," Dr. Neel Ocean, lead author and Research Fellow in Behavioural Economics at Leeds University, tells NutritionInsight.

Published in Social Science and Medicine, the study employed panel data analytical techniques collected between 2010 and 2017. "We controlled for a variety of demographic factors including age, income, marital status, employment status and education, as well as lifestyle variables such as smoking and walking. The relationship we found remained after we accounted for all of these variables," Ocean explains.

According to the study, there was no connection between overall physiological health and mental wellbeing. The researchers were able to control for both general health and the presence of a longstanding health condition and found no link. "The positive relationship with mental wellbeing holds even when we take health into account," Ocean adds.

Quantity and frequency of consumption also play a part in improving mental wellbeing, and since most people do not consume their recommended five portions of fruit and vegetables a day, Ocean says that adding one portion per day could significantly improve psychological health. Consumption of vitamins C and E seems to be important for mental health, according to the researchers, who also controlled on bread and dairy products and found that "these do not appear to be related to mental wellbeing."

Ocean says that the exact mechanisms behind the positive relationship between fruit and vegetable consumption and mental wellbeing are yet unknown and there are no rules to follow in terms of food formulation that will boost mental health. "However, it probably wouldn't be a bad thing if there was an increase in the availability of convenience foods that had significant fruit or vegetable content," he notes.

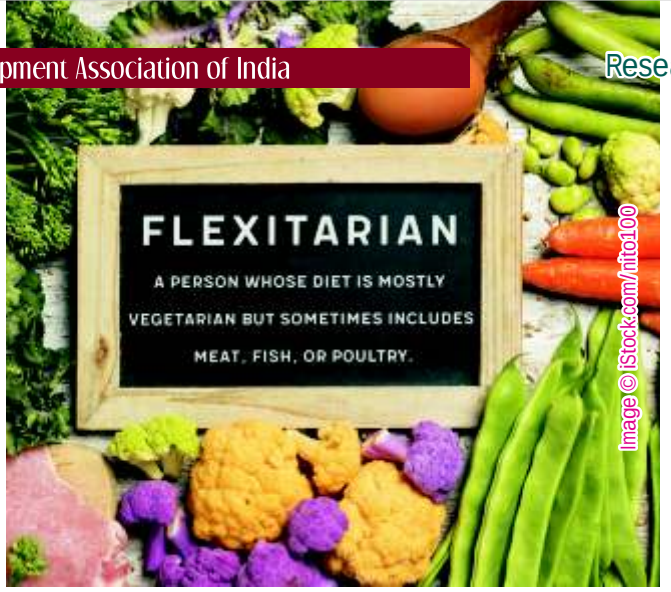
"In further longitudinal work, ideally, one's entire diet needs to be accounted for so that we can rule out other explanations that relate to overall calorie intake or the consumption of other foods (the availability of data is usually the limitation here)," Ocean says. "A large-scale randomized controlled trial testing the well-being effects of a fruit and vegetable intervention would help to determine whether the relationship was causal," Ocean concludes.

While more research is certainly warranted, the importance of a healthy diet rich in fruit and vegetables has long been known. At the same time, a growing body of evidence links processed foods, saturated fats and sugar to mental health issues such as depression and anxiety.

Another study found that adolescent rats that consume a diet high in saturated fats are at an increased risk of psychopathology in adulthood. Moreover, the researchers from Loma Linda University in California found that the areas of the brain that handle fear or stress responses were altered to the point that subjects began exhibiting behaviors that mirror post-traumatic stress disorder (PTSD).

The importance of the gut-brain axis is also still being explored with research recently establishing a correlation between depression and a group of neurotransmitter-producing bacteria found in the human gut. Interestingly, an inverse relationship between specific gut bacteria and brain activity in areas connected to depression were identified in the animal study. Published in Nature Microbiology, the findings could lead to the development of bacterial therapeutics for depression, including a growing role for probiotics.

By Kristiana Lalou



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Is flexitarianism the "perfect" diet?

25 Feb 2019 —

The increasingly popular flexitarian diet combines all the benefits of vegan, vegetarian and animal-based diets and may be best for most people, according to studies by Nestlé Research.

Carried out in collaboration with the University of Hawaii Cancer Center, the studies found that the levels of macro and micronutrients in each meal were more important than the type of diet consumed, suggesting that a flexitarian or semi-vegetarian diet may be most beneficial for overall health. The researchers observed improvements in metabolic health indicators such as cholesterol, blood lipids and glucose tolerance within 48 hours of consuming a vegan diet. In order to understand how different diets affect metabolic health indicators, Nestlé's researchers also monitored macro and micronutrients following vegan, vegetarian and meat-eating meals.

Despite the benefits of vegan diets, certain micronutrients that are beneficial to health are more prevalent in animal-based diets. This suggests that a mainly plant-based diet that includes certain animal-based foods may be the best option. Flexitarian diets may, therefore, be the most beneficial for health, according to Nestlé Research. However, veganism has also been criticized as lacking in certain micronutrients. NutritionInsight has previously reported on the issue, speaking with dietitians about veganism, key nutrients and how the food and beverage industry can help by spurring on appropriate NPD.

Reduced meat and flexitarian diets are touted as healthier while being more environmentally conscious. With this in mind and taking into account the studies, Nestlé is adding more healthy plant-based products to its portfolio.

"The demand for plant-based foods and beverages is growing. At Nestlé, we want to make sure that we are meeting the plant-based consumer trend. We have been doing this through updated recipes with our well-known brands, new products and through acquisitions such as that of Sweet Earth and Terrafertil," Janet Matope, R&D Communications at Nestlé tells NutritionInsight.

In Europe, the company launched the Garden Gourmet range, which offers consumers seeking a flexitarian, vegan or vegetarian lifestyle, alternatives to meat such as the vegan filet pieces. The company is also accelerating new product launches across its portfolio via brands such as Coffee-Mate Natural Bliss non-dairy creamers and Nesfit plant-based smoothies.

High in the Nestlé's list of priorities is the plant-based proteins and dairy alternative space. "We are specifically looking at meat and dairy alternatives. To ensure that we are getting these products as quickly as possible to our consumers, we use fast prototyping and leverage our size and scale for quick in-market testing," Matope says.

A 2018 Innova Market Insights consumer survey found that one in five US consumers "have eaten less meat across the past year." The broadening interest in plant-based diets has also resulted in meat alternatives moving beyond their original vegetarian and vegan domain. Their positioning encompasses a much broader base of flexitarians, as NPD focuses on improving quality to replicate real meat.

Meat substitutes accounted for 14 percent of global meat launches in the first nine months of 2018, up from six percent in 2013. There has been considerable activity and innovation from new plant-based meat brands targeting opportunities for good-tasting, nutritious and sustainable options among vegetarians, vegans, meat reducers and flexitarians.

A healthy microbiome is key to warding off CVD, says UK nutrition body

28 Feb 2019 ---

Following a diet that encourages a healthy gut microbiome, avoiding central obesity and getting enough sleep are among the lifestyle factors that may help to protect against heart disease and stroke, according to a report from the British Nutrition Foundation (BNF) Task Force.

The report, Cardiovascular Disease: Diet, Nutrition and Emerging Risk Factors: 2nd Edition, was presented


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yesterday at a conference for academics and health professionals. The Task Force is calling for further research, particularly regarding the link between specific gut bacteria and cardiovascular health.

"The concept that the gut microbiome might be linked to risk of cardiovascular disease is relatively new, but we know that gut bacteria can affect health in a variety of different ways and there is a lot of research emerging in this field," a BNF spokesperson tells NutritionInsight. Further research is warranted to understand which types of gut bacteria are most important for health and the different ways in which they could influence the risk of cardiovascular disease, they note.

In the UK, the death rate from cardiovascular disease (CVD), which includes heart disease and stroke, has been falling. But it is still one of the leading causes of death. There are a number of treatments available, which have contributed to reducing mortality, but ill health associated with CVD morbidity remains high and could even be rising in older age groups.The fermentation of fiber by our gut bacteria may also influence our risk of heart disease.

Professor Keith Frayn Emeritus, Professor of Human Metabolism, University of Oxford and Chair of the Task Force, says: "Conventional lifestyle-related risk factors for cardiovascular disease include smoking, raised cholesterol and blood pressure, lack of physical activity, obesity and diabetes. However, these 'classical' risk factors cannot fully explain differences in cardiovascular disease risk and emerging evidence suggests that other novel risk factors may play an important role."

The Task Force report explores some of the emerging and novel risk factors and how they can affect the risk of heart disease and stroke.

Gut health

Scientific research shows that eating whole grains and other fiber-rich foods are important for a healthy gut, but the Task Force report highlights that the fermentation of fiber by our gut bacteria may also influence our risk of heart disease.

Sara Stanner, Science Director at the BNF and editor of the Task Force report, says: "As a nation, we're consuming well below the recommended fiber intake. Eating plenty of fruit and vegetables, choosing high-fiber or wholegrain varieties of starchy carbohydrates, and eating plenty of pulses, like beans, peas and lentils, will contribute to fiber intakes and can help to keep your gut healthy and decrease risk of heart disease."

Indeed, a recent report published by The Lancet noted that higher intake levels of dietary fiber and whole grains are linked with a lower risk of non-communicable diseases, body weight and cholesterol levels.

Central fat

Being overweight may increase the risk of heart disease and stroke, but where the body carries any excess fat is also important in determining the risk of heart disease and stroke. The Task Force report explains that people who have excess fat around the stomach are at increased risk because the cells secrete a number of substances that can contribute to risk.

"Regardless of height or BMI, people should try to lose weight if their waist measures more than 94cm (37ins) for men and 80cm (31.5ins) for women," says Stanner.

Published last year, a Mayo Clinic study found that even for those with a healthy body mass index (BMI), a "fat belly" creates a two-fold higher long-term risk of heart problems.

However, a recent American Heart Association (AHA) Heart and Stroke Statistics report found that although 48 percent of Americans suffer from some type of CVD and 90 percent of Americans understand that regulating body weight is beneficial to heart health; they do nothing to tackle weight issues actively.

Minerals

There are links between sodium and high blood pressure risks, but other minerals such as calcium, magnesium and potassium may play a role in preventing high blood pressure, says the report. They could also have positive effects on other risk factors for heart disease and stroke.

"Eating a varied diet will help to ensure you get all the essential minerals you need; potassium is found in foods like bananas, potatoes and fish, magnesium in lentils and whole grains and calcium in dairy foods and some green leafy vegetables," explains Stanner.

Sleep Studies have linked stress with ill health, but the link between stress and increased risk of heart disease and stroke is growing. Evidence in the report suggests that it is not just a lack of sleep, but also poor quality and interrupted sleep that may be linked to an increased risk of heart disease, stroke, Type 2 diabetes, obesity and hypertension.

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Image © iStock.com/andresr

"There is emerging evidence that inadequate sleep is linked to increased risk of cardiovascular disease. For general health, adults should aim for between seven and nine hours of sleep a night," Stanner adds.

Workplace stress

Many scientific studies have linked stress with ill health, but the link between job-related stress and increased risk of heart disease and stroke is becoming more widely recognized. The report suggests that exposure to stress activates specific regions of the brain, leading to an increase in heart rate and blood pressure, which can affect blood vessel walls and damage the functioning of the blood vessel lining.

For those exposed to stress in the workplace, it may be a good idea to find relaxation techniques and actively work at managing stress levels, the researchers advise.

Other risk factors

Other significant risk factors identified by the Task Force report include birth weight (both high and low birth weights are associated with increased risk of heart disease in later life), excessive consumption of alcohol and sedentary behavior, even if interspersed with physical activity.

By Laxmi Haigh

Consuming garlic and onions may lower colorectal cancer risk

Science Daily February 21, 2019

Consumption of allium vegetables -- which include garlic, leeks, and onions -- was linked with a reduced risk of in colorectal cancer in a study of men and women in China.

In the Asia Pacific Journal of Clinical Oncology study, 833 patients of colorectal cancer were matched to 833 healthy controls by age, sex and residence area. Demographic and dietary information were collected via face-to-face interviews using a validated food frequency questionnaire.

The odds of having colorectal cancer was 79 percent lower in adults who consumed high amounts of allium vegetable compared with those who consumed low amounts.

"It is worth noting that in our research, there seems to be a trend: the greater the amount of allium vegetables, the better the protection," said senior author Dr. Zhi Li, of the First Hospital of China Medical University. "In general, the present findings shed light on the primary prevention of colorectal cancer through lifestyle intervention, which deserves further in-depth explorations."


Image © iStock/buntykochar

Grocery-store based nutrition education improves eating habits

Science Daily February 11, 2019

Hypertension affects over 60 million adults in the United States and less than half have their condition under control.

A new study published in the Journal of Nutrition Education and Behavior found that grocery store based nutrition counseling was effective in changing dietary habits of patients being treated for hypertension.

"Primary care providers face multiple barriers when delivering nutrition information to patients, including lack of training on how to provide lifestyle behavior counseling combined with lack of time to interact with the patient," said lead author Rosanna P. Watowicz, PhD, RDN, LD, Department of Nutrition, Case Western Reserve University, Cleveland, OH, USA. "This study's aim was to evaluate the effectiveness of a nutrition counseling program provided by a registered dietitian in the familiar setting of a grocery store."

This study recruited patients from three primary care offices that were part of an urban academic medical center. Thirty adults aged 18-60 years diagnosed with hypertension participated. Study participants represented a diverse demographic in regard to sex, race, education, and employment.

Participants received individual counseling at one of three local grocery stores from two registered dietitians trained to provide lifestyle modification information based on the DASH (Dietary Approaches to Stop Hypertension) diet. Three counseling sessions, provided free to the patients, occurred over 12 weeks. The first visit was 60 minutes long followed by two 30-45-minute sessions. Following each session, a recap of the visit and patient's progress towards goals were provided to the primary care provider to be included in the patient's records.

Diet quality was assessed using the Healthy Eating Index-2010, a measure of overall diet quality compared to the Dietary Guidelines for Americans. Patients completed a food frequency questionnaire, documenting food and beverages consumed at least once during the previous three months, prior to beginning the study and at the end of the study. Blood pressure measurements were also taken. Following the education, patients' eating habits significantly improved in regard to total fruit, whole fruit, greens and beans, whole grains, fatty acids, refined grains, and empty calories. Sodium, saturated fat, discretionary solid fat, and total fat intake decreased significantly as well. Intake of added sugar also decreased although not to the same extent as the other categories.

Blood pressure measurements also decreased during the study, but due to the small number of participants the differences were not statistically significant. Additionally, patients reported a high level of compliance in taking their hypertension medication as prescribed during the study. "Providing education at the grocery store offers a convenient location on a schedule with more flexibility than a primary care office and reinforces dietary changes in the environment where food decisions are made," said Dr. Watowicz. "This strategy should be researched with other health conditions."

Image © iStock.com/Ridofranz

Inexpensive supplement for women increases infant birth size

Science Daily February 11, 2019

For women in resource-poor settings, taking a certain daily nutritional supplement before conception or in early pregnancy may provide enough of a boost to improve growth of the fetus, according to a study funded by the National Institutes of Health.

The inexpensive supplement consists of dried skimmed milk, soybean and peanut extract blended into a peanut butter-like consistency. Weighing less than an ounce, the supplement is fortified with essential vitamins and minerals and provides protein and fatty acids often lacking in the women's diets.

The study was conducted by researchers in the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Global Network for Women's and Children's Health Research. The study also received support from the Bill and Melinda Gates Foundation. Researchers distributed the supplement to women in rural areas of the Democratic Republic of the Congo, Guatemala, India and Pakistan.

Roughly 7,300 women were randomized to either receive the supplement three months before conception or during the first trimester (third) of pregnancy or receive no supplement other than what they may have received from local health services. Women in the supplement groups were 31 percent less likely to have an infant that was of shorter length (stunted) at birth and 22 percent less likely to have an infant that was small for gestational age. According to the authors, these findings show that it's possible in poor areas to inexpensively improve maternal nutrition before and in the early stages of pregnancy.

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Body building supplement could be bad for the brain

People taking the protein supplement L-norvaline should be aware of its potential for harm, scientists say

Science Daily February 7, 2019

People taking the protein supplement L-norvaline should be aware of its potential for harm, scientists say.

L-norvaline is an ingredient widely used in body building supplements and is promoted as a compound that can boost workouts and aid recovery. Similar compounds have been linked to neurodegenerative diseases and a study on human cells, by scientists from the University of Technology Sydney, suggests L-norvaline may also cause damage to brain cells. The study, published in Toxicology in Vitro showed that even at relatively low concentrations the amino acid L-norvaline could make cells unhealthy and eventually kill them.

Proteins in our diet contain amino acids that are released in our gut and then used by our bodies to build new proteins. L-norvaline is one of hundreds of amino acids that arenot normally used to make proteins in humans. In recent years the popularity of dietary supplements to enhance body strength and muscle performance has meant that many now contain lots of unusual amino acids that can do harm. Lead

author of the study Kate Samardzic said that the highest consumption of amino acids is among athletes and bodybuilders.
"Protein requirements are higher in very active individuals and proteins are considered to improve and increase performance. The demand for amino acids in supplements has expanded but in addition to the normal protein-building amino acids other 'non-protein' amino acids are being taken," the UTS School of Life Sciences PhD candidate said.

"Some non-protein amino acids are toxic because they can mimic protein amino acids and deceive the body into making faulty proteins; a property used by some plants to kill predators. "Some plants can even release non-protein amino acids into the soil to kill other plants so that they can have access to all the nutrients. Chemical warfare among plants is a well known phenomenon. Since there was evidence that L-norvaline has antimicrobial and herbicidal activity we examined its toxicity in human cells," Samardzic said. This is the first study that investigates the toxicity of L-norvaline in human cells, specifically testing its effect on the health of brain cells arising from its ability to mimic protein amino acids. Associate Professor Ken Rodgers who led the research said the study revealed that L-norvaline while, it might initially allow cells to produce more energy, after a while the machinery of the cell that generates the energy is damaged. People are taking supplements such as this without really knowing much about what the long-term consequences might be.

Flaxseed fibre ferments in gut to improve health, reduce obesity

Flaxseed supplements increase 'good' bacteria and fatty acids in mouse study

Science Daily February 5, 2019

Research in mice suggests that fermentation of flaxseed fibers in the gut changes the microbiota to improve metabolic health and protect against diet-induced obesity.

The study, published ahead of print in the American Journal of Physiology -- Endocrinology and Metabolism, was chosen as an APSselect article for February. The organisms that live in the digestive tract (gut microbiota) play a role in regulating weight and the way the body processes sugar (glucose tolerance). The breakdown of dietary fiber in the gut -- a process called fermentation -- can produce favorable changes in the digestive system, such as an increase in beneficial fatty acids, which may reduce the production of fat tissue in the body and improve immune function. Flaxseed is a fiber-rich plant that has been shown to improve cholesterol levels and inflammation in the colon. However, there is little research on the fermentability of flaxseed and how flaxseed fiber affects gut microbiota.

Researchers studied mice assigned to four different diets:
• a standard diet that contained 4.6 percent soy-based fiber ("control");
• a high-fat diet that contained no fiber ("high-fat");
• a high-fat diet that contained 10 percent indigestible cellulose fiber ("cellulose"); and
• a high-fat diet that contained 10 percent flaxseed fiber ("flaxseed").

The research team measured the amount of oxygen the mice used, carbon dioxide produced, food and water consumed and energy expended. Glucose tolerance was also measured near the end of the trial. At the end of 12 weeks, the researchers examined the animals' cecal contents -- bacteria and other biological materials in the pouch that forms the beginning of the large intestine (cecum).

The high-fat group had fewer bacteria associated with improved metabolic health, lower levels of beneficial fatty acids and more of a bacterium linked to obesity when compared to the other groups. Bacteria levels in both the cellulose and flaxseed groups returned to healthier levels when compared to the high-fat group. The flaxseed group was more physically active and had less weight gain than the other high-fat diet groups. The mice that received flaxseed supplements also had better glucose control and levels of beneficial fatty acids that were comparable to the healthy control group. When examining the cecal contents, the research team found evidence that the bacteria present ferment fibers from the thick, glue-like layer of the flaxseed shell. The bacteria that perform fermentation then produce more beneficial fatty acids.

"Our data suggest that flaxseed fiber supplementation affects host metabolism by increasing energy expenditure and reducing obesity as well as by improving glucose tolerance. Future research should be directed to understand relative contribution of the different microbes and delineate underlying mechanisms for how flaxseed fibers affect host metabolism," the researchers wrote.


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FOOD SCIENCE & INDUSTRY news

Can a sports nutrition product be too good?

By Hank Schultz 01-Feb-2019 – NutraIngredients USA

Dietary supplements and the ingredients that go into them have always had to walk a careful line. Everyone wants efficacy. But if your ingredient is too efficacious, are you treading too close to the drug line? The effects of most dietary supplements are subtle, long term or prophylactic in nature.

How to measure long term effects

For example, how do you measure a feeling of greater positivity, which might be an endpoint for a mood support ingredient? There are validated mood scales and so forth, but these rely on questionnaire answers and don't approach the hard data nature of a blood test or other biomarker. Or how about those ingredients, like omega-3s, that have risk-lessening effects that have been validated through clinical research? That research looks at wide-scale population effects, and tells a compelling story in that realm. But not everyone responds the same. Until we have a validated way to tell who will respond well to omega-3s supplementation and who won't, it's really a matter of faith that by using these ingredients you have lessened your own personal risk of developing certain forms of cardiovascular disease.

Most immediate meaure: winning or losing

The efficacy balancing act is an especially delicate one with sports nutrition. In sports nutrition, we cross the boundary into hard and fast measurements. What could be more stark than winning or losing? Or shaving 10 seconds off of a cycling time trial? Or adding a bodybuilding contest-winning extra inch on one's biceps? The best athletes are always looking for a leg up on the competition. We would all like to believe that this is achieved via harder work, greater commitment and an unbending will. I think there's no doubt this forms most of the foundations of success. But then there is that extra special edge. Shaving 0.5% off the time trial time for a racing cyclist can be a winning difference. Being able to sustain 5% more work can be a decisive edge for a weightlifter training for a physique competition. The temptations to grab for an edge via an ingestible product can be great, especially when all other avenues of improvement have been exhausted.

What athletes have been wiling to risk

Outright doping with obviously illegal substances has been one way that athletes have sought this edge. Most notoriously in cycling, the substance EPO was used to boost red blood cell counts and therefore the blood's ability to transport oxygen. Lance Armstrong got to an elite level in professional cycling because he was talented, he was tenacious and he worked extremely hard. He was a winner because he used EPO. But this is not just a case of excesses in cycling. Numerous NFL players have failed drug tests for various performance enhancing substances (many of them blaming supposedly tainted supplements). And international tennis superstar Maria Sharapova recently returned to competition after serving a suspension for using meldonium, a drug not approved in the US that is used to boost blood flow in heart patients. Sharapova had not previously been reported to have heart problems.

How prevalent is doping, really? A study done among Canadian university athletes concluded "doping is neither prevalent nor worth the risk for these CIS athletes. There also appears to be an opportunity for pharmacists to play a more prominent role in providing advice on medication use to high-performance athletes."

But (no offense intended) the Canadian Interuniversity Sport Union is very small potatoes among sports certifying organizations. The competition is low key and not highly funded. So, while these athletes are mostly likely highly committed to their individual pursuits, there is not a lot of money being made from the competitions in terms of ticket sales, coaches' salaries, sponsorships, etc.

More than 50% of athletes shown to have cheated

The picture seems different at higher levels. According to recent study, the prevalence of doping in international track and field competitions is much higher than even the World Anti Doping Agency will admit. After what to some appeared to be a suspiciously long and convoluted publication history , a study was released in 2017 that said 57% of athletes doped at two international competitions in 2011, a far higher percentage than what WADA had reported. So, it's obvious that there is a demand among athletes and those who advise them for substances that can boost their performance. If those are not on the WADA banned substances list, that's great. If they are, then some athletes seem bound and determined to run that risk.

Dodgy sports nutrition ingredients

In the sport nutrition realm, there have been some companies and formulators who have been willing to run similar risks. Steroids have of course been part of what could be loosely called 'sports nutrition' for many years, stretching back to the first BALCO scandal and the high profile professional baseball players who were implicated. But we'll leave those aside here, as they are clearly drug ingredients, and have been dealt with via the Designer Anabolic Steroid Control Act. But following on from anabolic steroids, which even dedicated users in the bodybuilding community admit are tricky to use without unwanted side effects, there came the Selective Androgen Reuptake Modulators (SARMs), substances that could mimic the effects of steroids while sidestepping some of their side effects.

Are these substances legal ingredients for dietary supplements? Who cares! At least that seemed to be the stance taken by the makers of some of the dodgier sports products who rushed to put offerings on the market that contained these ingredients. A bill has been introduced in Congress to give FDA similar authority over these ingredients. Some stimulant ingredients have found a home the in the gray penumbra of the sports nutrition realm. Most notoriously there was DMAA, which was purportedly traced to a geranium species. But there have been others, such as DMBA and BMPEA, which purportedly could be found in a species of orchid.

What's the answer?

Sports nutrition as a category holds great promise both for industry growth and for positively affecting the lives of consumers. But it also contains within it the potential seeds of its own destruction, in that there will always be a temptation to cater to the 'win at any cost' mentality. Legally marketed and manufactured dietary supplements cannot contain any of the ingredients mentioned above. In an area fraught with peril, NutraIngredients-USA will attempt to shine a light on the path that leads toward the high road. There are many solid ingredients in this space, with solid science behind them, and we will continue to highlight those, as we did with our first Sports Nutrition Summit , a joint effort with the International Society of Sports Nutrition, which concluded last week in San Diego. Stay tuned for details on next year's version.

The bottom line: There is no quick answer here. Human nature dictates that some people will always tend to cheat. It will be an ongoing conversation, one that NutraIngredients-USA intends to be at the forefront of.


Image © iStock.com/ ac_bnphotos

Non-stick spaghetti? New enzyme developed to stabilise 'overcooked' pasta

By Flora Southey 24-Jan-2019 – Food Navigator

German company Mülenchemie has developed an enzyme to improve the cooking tolerance of pasta, which the firm says could save manufacturers in raw material costs. According to Mülenchemie, adding 40 g of the Pastazy PD enzyme per 100 kg of flour can extend the cooking time of pasta and noodles by 20 minutes, even when overcooked. "Pasta tends to stick together quickly if it is cooked or kept too long. The quality and therefore the cooking tolerance of the pasta suffers considerably, especially when low-protein flour are used," explained the company. The German firm, which launched the enzyme system last year, told FoodNavigator it expects the development will help food manufactures switch to cheaper wheat varieties.

Low vs high-protein flour
While high-protein, hard wheat flour is regarded the optimal raw material for the production of high-quality pasta, it is generally more expensive than low-protein alternatives. "Especially durum wheat, which is the most common wheat used in pasta production," explained pasta product manager Jana Russnak.

Price aside, restricted availability of high protein wheat varieties makes mixtures of hard and soft wheat, or soft wheat alone, "very interesting for use in the past industry".

Softer flours, however, are less tolerant to longer cooking times, which can affect that sought-after al dente bite. Pastazym PD make it possible to achieve acceptable quality of pasta and noodles made with soft or mixed flours despite prolonged cooking times, said Russnak. This means that manufacturers can "switch to cheaper wheat varieties and considerably reduce the cost of raw materials."

Consumer behaviour

The 'anti-stick' element can also have a positive influence on consumers' purchasing decisions, Russnak told this publication. At home, "consumers [often] pay no attention to the cooking time and accept [pasta is still good] even after a long cooking time." In addition, "customers keep the pasta warm for a long time and want the pasta to be stable. So a long overcooking tolerance is [important] as well," she continued.

Pastazym PD can also help firms tap into the clean label trend – a movement associated with products containing few, authentic ingredients. As Pastazym PD is classified as a processing aid, its addition does not require adjustment on a product's ingredient label, Russnak explained. "After the drying process, the enzymes are deactivated and have no functionality in the final pasta."

Plant protein alliance to improve structure and taste of gluten-free bread

By Flora Southey 31-Jan-2019 – Food Navigator

Coeliac UK and Innovate UK are helping fund research to develop three new plant proteins for gluten-free bread, which Nandi Proteins chairman Neil Crabb says could improve its taste and texture.

Image © iStock.com/minoandriani

Innovate UK and Coeliac UK have contributed £180,697 (€206,400) towards a £250,000 research project aimed at developing gluten replacements from UK-grown crops. The Nandi Proteins-led consortium includes Genius Foods, ingredients business AB Mauri, agronomy firm Agrii, Heriot-Watt University in Edinburgh.

"The challenge [with gluten-free bread] is that the current solutions lead to a problem – they either don't taste as good or don't perform as well [as gluten bread]," Nandi Proteins' chairman Neil Crabb told FoodNavigator. By improving the ingredients used in gluten-free bread, it is expected manufacturers will be encouraged to extend their gluten-free ranges.

Clean label ingredients

The project will focus on three ingredients currently underused by the food industry: faba beans, rapeseed byproducts, and naked oats – which naturally thresh free from the husk during harvest. "Essentially, we are taking potentially lower cost by-products that currently are not efficiently used, and making a high value ingredient from them that solves the coeliac problem, but equally helps reduce food waste as part of the process," said Crabb.

In addition, by using natural ingredients, gluten-free bread manufacturers may be able to reduce the need for E number additives. "There is a question whether vegetable protein ingredients should have a wider role than they currently do in product formulation," explained Crabb.

The science

Nandi Proteins will use its proprietary technology to create protein concentrates from the aforementioned raw materials supplied by Agrii. "Nandi's patented technology is based on the knowledge that the functional properties of proteins change when they unfold, or 'denature'," Nandi explained in a statement.

"Controlled denaturation can be used to deliberately change and control the protein functionality as an ingredient." Once Nandi has 'functionalised' the proteins – which involves heat treating them in a measured fashion in order to improve their properties along particular parameters – Genius Foods and AB Mauri will conduct ingredient testing, before adapting their bread formulations and assessing commercial feasibility.

'The gluten-free market is here to stay'

The research by Nandi and its partners on innovative gluten-free ingredients will keep the UK ahead in the food industry's expansion into gluten-free, Coeliac UK chief executive Sarah Sleet told FoodNavigator.

"The gluten-free market has exploded over the last 20 years driven by increasing numbers of people diagnosed with coeliac disease and others avoiding gluten for medical reasons. One in 100 people in the UK have coeliac disease although only 30% of them are diagnosed at the moment. However, diagnosis is on the rise and as the only treatment is a lifelong gluten-free diet, the gluten-free market is here to stay," she continued.

Health overtaking flavour: Food companies ride on rising salt reduction and clean label trends in China

By Pearly Neo 20-Feb-2019 – Food Navigator Asia

Health concerns are overtaking flavour preferences in China — where dishes are traditionally prepared with substantial amounts of seasonings and spices — and food companies are increasingly using this trend to their advantage.

According to market intelligence agency Mintel, over the last six months 94% of urban Chinese consumers have opted to reduce their salt intake, a significant departure from traditional Chinese cooking styles that have a strong emphasis on flavour and taste, usually derived from high salt and seasoning content.

This was observed in efforts such as 55% of consumers reducing the amount of salt used in cooking, 37% reducing monosodium glutamate (MSG) use, 36% reducing soy sauce use, and 38% reducing their consumption of processed foods.

"Driven by increasing health concerns, Chinese consumers are taking care over their diets and trying to avoid 'bad' elements like salt and MSG," said Crystal A, Food and Drink Research Analyst, Mintel China Reports.

"Although it is likely that majority of consumers don't exactly know the daily recommended salt intake, it seems that most actually understand the dangers of a high-salt diet and are trying to limit their daily intake."

Crystal added that the levels of knowledge and alertness with regard to product information is also on the rise amongst Chinese consumers, a situation that food companies can utilise when planning marketing campaigns. "Consumers' increasing awareness of their salt and MSG consumption is also affecting how they are using and purchasing the type of seasonings.


Image © iStock.com/pailoolom

Brands should look into MSG-free flavour enhancements and leverage them, particularly through their marketing efforts, as consumers become more sensitive towards product information," she said.

The 'clean label' trend also falls under the area of health awareness here, along with Genetically Modified Organism (GMO) concerns. "Today's consumers are no longer willing to compromise on health for better flavours, and this has made clean labels pivotal in their daily diets. For instance, they focus on whether the product contains GMO ingredients and MSG, and whether it has a high content of salt," added Crystal.

"As such, soy sauce, and other seasoning brands, can look into launching products featuring clean label and zero additives to fill the gap in the Chinese marketplace."

Food manufacturers heed trend

Indeed, food brands both locally and internationally have shown awareness of this rising trend and responded with products lower in salt and/or MSG.

A clear example is that of soy sauce, which is seeing increasing numbers of light-/no-salt options appearing in the market. Soy sauce is one of the country's most-used condiments, almost considered a staple in some forms of Chinese cooking.

Mintel revealed that 33% of married consumers with one child will consider whether a soy sauce (dark or light) contains GMO ingredients before purchase, while just 25% of married couples without children do the same. This shows that clean label is particularly important when it comes to marketing to parents.


Image © iStock.com/efetova

In addition, 25% of married consumers with a child will consider the level of sodium/salt content in soy sauce and 24% consider whether it has MSG before purchasing. Haitian Food, one of China's largest soy sauce producers, has a variety of options in this area. Its 'extra-extra less' salt option has 20% less salt than its classic products.

"5ml of this soy salt has just 1g of salt, and the dishes produced using this taste even better than using salt directly," claimed Haitian to local province media zgjxrx.com . "We did not dilute the soy sauce with water, but instead used suitable and moderate technology throughout the production process to control the salt level." Haitian also has a completely salt-free option and less-salt option, marketed under its brand TIME.


Image © iStock.com/GMVozd

Major competitor Lee Kum Kee also has several healthier options, including two no-preservatives-added soy sauces (regular and premium), and its 'Less Salty' soy sauce with 25% less salt than regular variants.

In addition, the company has declared many of its other products including stir-fry sauces to also be 'cholesterol free and contain no artificial flavouring, preservatives or colours'.

That said, Lee Kum Kee in China was recently faced with a significant setback last year when its products were amongst 29 samples tested by the Jiangsu Consumer Council and found to fail the country's production standards. Lee Kum Kee responded by requesting a repeat testing, which the council turned down.

"In 26 Sep 2017, Lee Kum Kee sent samples from the same production batch to the Inspection Technical Centre of Zhuhai Entry-Exit Inspection and Quarantine Bureau for testing," said the company in a statement.

"Results showed that the amount of sodium was within acceptable range. Lee Kum Kee informed Jiangsu Consumer Council this information and hope to conduct another round of testing, but was not granted permission."

Japanese soy sauce giant Kikkoman also has a successful low-salt version which uses the soy peptide protein and contains 50% of regular salt content.

Soy peptides are believed to benefit blood pressure levels, and according to Nikkei Asian Review Kikkoman initially released the low-salt version as a 'niche product' targeted at high blood pressure patients or those interested in prevention.

The innovation process involved "more than 15 sections across the company, including marketing, procurement and fermentation teams," said Ryohei Tsuji, Head of production development, Kikkoman Food Products.

'Social media has changed the way we drink!'

By Rachel Arthur 06-Feb-2019 – Beverage Daily

Beetroot, matcha, turmeric and charcoal are helping beverages burst into colour – all the more important as bright and beautiful photos of what we eat and drink continue to gain traction on social media channels.

So how is social media shaping beverage trends? Kerry Foodservice – a division of Kerry which works with customers in the foodservice sector on insights and product development – recently commissioned Initiative to research the evolution of beverage trends globally. It says that by looking into beverages on the menus it can help identify broader trends for the future. "Social media has changed the way we eat and drink with consumers expecting every dish and beverage to be #Instaworthy," the company says.

"Social sharing is now impacting the progression of beverage trends through menus, and these insights can help the industry identify future beverage trends.

Not only is the beverage market highly competitive but consumers are increasingly educated, interested and adventurous which has driven a need for operators to constantly innovate and create stand-out products."


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Coffee is cool

Research from Mintel suggests that 30% of coffee consumers are now looking for chilled coffee drinks as an alternative to carbonated soft drinks. Online searches for 'Espresso Tonic' (a chilled drink made with tonic water, juniper berries, ginger, and an espresso shot) have been steadily growing over recent years and nearly 9,000 social posts have been shared showing the growth in popularity of the beverage, at a time when a significant number of consumers are searching for an alternative to soft drinks. now impacting the progression of beverage trends through menus, and these insights can help the industry identify future beverage trends. Not only is the beverage market highly competitive but consumers are increasingly educated, interested and adventurous which has driven a need for operators to constantly innovate and create stand-out products."

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Health halos and colourful creations

Many consumers are looking to cut back on caffeine (25% of consumers are interested in caffeine-free alternatives). This has lead to the emergence of coffee alternatives such as beetroot latte, matcha latte and turmeric latte, Kerry Foodservice observes. In addition, these ingredients have a considerable health halo: important given that 33% of UK coffee consumers are interested in purchasing hot drinks with health-boosting benefits and natural ingredients.

An analysis of online keywords shows Matcha Latte has seen significant and sustained growth since originating in Singapore with a steady increase in searches for beetroot latte, turmeric latte and charcoal latte - all of which originated in Australia. And these beverages bring vibrant colour to social media posts: #colourfullattes such as beetroot, matcha, turmeric and charcoal have seen over 200,000 Instagram posts worldwide in the last 12 months, and this has grown by 24% in the last 6 months. Consumers continue to aspire for healthier lifestyles: leading to a rise in natural ingredients and plant-based diets (veganism quadrupled between 2012 and 2017).

Research suggests 29% of UK adults display concerns for the high levels of sugar in bottled ready-to-drink cold teas, opening the door for botanical beverages that can provide a healthier alternative such drinks, while also delivering nutrients and functional benefits of plantbased ingredients. Analysis of Google Trends, however, shows that while interest in botanical beverages is growing it is slower than other beverage trends.

New RTD platforms: Israeli start-up launches vegan chickpea protein powder

28 Feb 2019 ---

A new chickpea protein concentrate presented as CP-Pro70, from Israeli food tech start-up InnovoPro Ltd., is part of a new vegan athletes ready-to-drink (RTD) formula launched in Israel, this month, by HadassaBymel Pharmacy and Nature.

The powdered vegan nutritional shake, under the brand name: "Pro body," is targeting the growing market of consumers who want to maintain a healthy lifestyle by supplementing with vegan nutritionals. Protein continues to find application across food and beverage categories and is definitely one of the key issues at the forefront of consumers' minds. A 2018 Innova Market Insights consumer survey revealed that almost 50 percent of UK consumers are influenced by protein content when buying food and beverages, making it an attractive way for formulators to draw consumer attention.

Plant-based proteins, in particular, have also been gaining momentum and plant-based eating trends have also been in the limelight in the last couple of years, as the trend gains further traction. Both vegetarian and vegan options became incredibly prevalent throughout 2018.

According to data from Innova Market Insights, there has been a 45 percent average annual growth in food and beverage launches with a vegan positioning (CAGR, 2013-2017).

Furthermore, sports nutrition has always had a strong focus on protein content. This has grown higher in recent years as interest in the category has moved from a niche market into the mainstream. It is apparent across the food and drinks market as a whole, with 6.5 percent of all food and drinks launches recorded by the market researcher in 2017 using "high in," "source of" or "added" protein positionings, rising to nearly 12 percent in the US.

Pro body, by HadassaBymel Pharmacy and Nature, is the first launch of such a product and it contains a blend of plant-based proteins including InnovoPro's CP-Pro70.According to InnovaPro, the increasing demand for sports nutritional supplements from countries including the US, Canada, the UK, Germany, Italy and India is expected to drive demand over the forecast period. In addition, the growing demand for sports nutritional supplementation to promote lean muscle growth, improve performance and stamina, and weight reduction, coupled with the increasing number of gym-goers is expected to fuel market demand.

The rise in new plant-based products is increasing since the market is looking for products which are "free from all": non-GMO, non-soy, dairy-free and gluten-free. The chickpea protein has an excellent flavor profile as well as unique functionality. It is highly soluble and has a strong emulsification capacity. "This is just the beginning of many launches in various food categories. During 2019, we expect to see more launches worldwide with our CP-Pro70 in categories such as dairy alternatives, vegan spreads and functional beverages," says TalyNechushtan, CEO of InnovoPro.

Nechushtan tells NutritionInsight: "Our chickpea protein concentrate is highly soluble and functional is a premium plant-based protein that can be used in small dosage for its remarkable emulsification properties. As illustrated by recent surveys and trends, the food industry is on a quest for a sustainable, reliable, nutritious and highly-functional plant-based protein. As the process is designed to be cost-effective and widely adaptable, now, for the first time, chickpea protein is within reach of large scale commercial use by the food industry in a variety of food applications such as beverages, mayonnaise, puddings, among other developing products.

As far as we see it, all the predictions are that not only are plant-based proteins here to stay, they will also increase in demand in the next few years, today plant-based is not just for vegan or vegetarians, there is a growing market of flexitarians that are reducing their overall meat and dairy consumption and are seeking for alternatives from plants," she says. Also, there is a growing segment of non-GMO and gluten-free consumers that are looking for healthy and tasty food products."

"We are currently just focusing on the European market and we see traction coming from eastern Europe as well," Nechushtan adds. Pro body, by HadassaBymel Pharmacy and Nature, is the first launch of such a product and it contains a blend of plant-based proteins including InnovoPro's CP-Pro70, chickpea protein, which, according to the company, is highly nutritious and has a good amino acid profile.

Nechushtan explains that Pro body is made using a sustainable and environmentally-friendly process and the product itself allows to shorten the list of ingredients and to clean their label. "By using our protein, food manufacturers can replace artificial ingredients and other less desired ingredients in various food products," she says.

"Rather than targeting the vegetarian and vegan markets, we are responding to consumers who seek to reduce their meat and dairy consumption and consumers who are looking for soy-free, dairy-free or gluten-free products, but are not willing to compromise on the products' taste," she continues. "This is a significant market which reaches 50-70 percent of the population in Western European countries and 40 percent of the population in the US."
The market for plant-based protein is currently estimated at around US$40 billion. However, InnovoPro is targeting the even-larger US$900 billion market of meat, fish and poultry, which is searching for new opportunities to provide protein-rich products.

In December 2018, InnovoPro raised US$4.25 million in an investment round led by Migros, Switzerland's largest retailer, and ErelMargalit, Founder and Chairman of Jerusalem Venture Partners (JVP), a leading Israeli Venture Capital fund.
By Elizabeth Green

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REGULATORY NEWS

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

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

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

"The food businesses shall have to comply with these regulations by July 1, 2019," said FSSAI CEO Pawan Agarwal. According to the official FSSAI statement on the matter, the regulations will cover general and specific packaging material requirements as well as overall migration and specific migration limits of contaminants for plastic packaging materials.

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

Safety first

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

The second was on chemical contamination from loose packaging material, by the National Test House (NTH), Kolkata. High levels (above 5%) of chemical contamination were found in samples of food packed in coloured carry bags (80%), black carry bags (59%), aluminium-coated disposable containers (24%) and sweet boxes (21%).

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

Also specifically mentioned by FSSAI was the prohibition of newspapers and other similar materials for packing and wrapping, due to 'the carcinogenic effect of inks and dyes' . The 'respective Indian standard' must be adhered to for the usage of printing inks on food packages.

Agarwal acknowledged that in view of this, the implementation of these new regulations is likely to face 'difficulties'. However, he remained certain that these were important, as they would 'raise the bar of food safety in India to the next level' .

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

Also on the list are organic food regulations, standards for honey, and microbiological standards for fruits and vegetables and the relevant products.

"Food businesses are usually provided a period of at least 6-months as transition period before new standards come into force," said FSSAI. Also upcoming in 2019 are regulations surrounding the tolerance limit of antibiotics and pharmacological substances in food products, originally scheduled for January 1 but now delayed to April 1 due to technical issues. Alcoholic beverage standards will be implemented on April 1 as well.

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

'We want to ensure labels are clearer': UK mulls tougher allergy labelling regulations

By Katy Askew 29-Jan-2019 – Food Navigator

The UK government is looking at how "tougher labelling laws" can protect allergy sufferers and close loopholes in labelling requirements.

Regulators want to overhaul allergen labelling regulations with the aim of giving consumers more information on what is in the food they buy. An estimated two million people in the UK suffer from food allergies and the government said it wanted to provide these people with greater confidence that the food they are eating is safe.

Under current rules, food prepared on the premise where it is sold is not required to display allergen information on pack. When a food business sells prepacked food for direct sale the same regulations apply as to non-prepacked food under the EU Food Information for Consumers Regulation No. 1169/2011, commonly known as EU FIR 2014.

This means food businesses preparing their products freshly on site are exempted from the obligation of labelling them with a list of ingredients. At the moment, for food prepared and sold at the same site information on allergens is required to be verbally given by the food business if asked by the consumer.

According to the FSA, there are 14 major allergens that should be flagged when used as an ingredient in food. 1. Celery, 2. Cereals containing gluten, 3. Crustaceans, 4. Eggs, 5. Fish, 6. Lupin, 7. Milk, 8. Molluscs, 9. Mustard, 10. Nuts, 11. Peanuts, 12. Sesame seeds, 13. Soya, 14. Sulphur dioxide

The risks associated with this policy were highlighted by the tragic death of Natasha Ednan-Laperouse, a teenager who suffered an allergic reaction to a Pret a Manger baguette in July 2016. The coroner who presided over her inquest concluded that the current legislation is not adequate and requested a review.

Environment Secretary Michael Gove launched a consultation on proposed changes earlier this week. "We want to ensure that labels are clearer and that the rules for businesses are more consistent – so that allergy sufferers in this country can have con_dence in the safety of their food," he said. Paying tribute to the Ednan-Laperouse family, Gove acknowledged that "many businesses" are making changes to their allergen labelling independently. He urged them to continue to make progress on this issue while the consultation process is underway.

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Four options on the table

The Department of Environment, Food and Rural Affairs (Defra) outlined four proposals to update the system. These range from mandating full ingredient list labelling, to allergen-only labelling on food packaging, 'ask the staff' labels with supporting information available in writing and "promoting best practice " around communicating allergen labelling.

Food businesses and allergy sufferers have been invited to have their say on the four options put forward. "It's essential for those of us with a food allergy or intolerance to know that we can trust the food we eat. Accurate and reliable labelling is vital, and this consultation is firmly aimed at improving the confidence we have in it," Food Standards Agency Chairman Heather Hancock said.

"In recent years choice, trust and availability has really improved for people with food allergy. We want those improvements to continue, so it's important that we hear from everyone affected, as part of this consultation."

'Do more than the bare minimum'

The consultation has been welcomed by organisations representing allergy sufferers, including Allergy UK and the Anaphylaxis Campaign.In a statement, the Anaphylaxis Campaign said it hoped both allergy sufferers and food businesses would participate in the consultation, stressing the need to find a workable solution for all stakeholders.

"The Anaphylaxis Campaign believes that food allergic individuals must be able to make informed decisions and to assess risk and self-manage their condition when eating out. We welcome the government's consultation as a way of understanding the views of all stakeholders and arriving at the best approach for all stakeholders and, in particular, those who suffer with food allergies. We hope all food business that sell food pre-packed for direct sale engage with this consultation to ensure that feasibility across all business sizes is taken into consideration," the organisation said.

Meanwhile Carla Jones, the CEO of Allergy UK, called on businesses to do more to ensure allergen information is clearly communicated. "At Allergy UK we believe that whilst those living with allergies must be vigilant on their own behalf, the broader food industry needs to do more than just the bare minimum when it comes to catering for the allergic community," she stressed.

Ensuring accountability: New India rules ensure food brand ambassadors are liable for 'misleading advertisements'

By Pearly Neo 27-Feb-2019 –Food Navigator Asia

The Food Safety and Standards Authority of India's (FSSAI) new advertising regulations means that food brands – and any ambassadors who endorse them – are subject to prosecution if their claims are found to be false.

According to FSSAI: "Any person, including a third party, who advertises or is a party to the publication of any misleading advertisement not complying with these regulations would be penalised with a fine extending up to INR1mn (US$14,100)."

In a separate statement issued by the Ministry of Health and Family Welfare (MoHFW) India in Sunday Guardian Live , these 'third parties' will include celebrities and other endorsers. "All stakeholders, including manufacturers, the celebrities and the channel endorsing a product that puts out a false or misleading advertisement about the food product's quality, nature or the substance, would be liable for prosecution," said MoHFW.

"Not only this, if the endorser of the food product gives to the public any guarantee of the product's quality, nature or the substance, would be liable for prosecution," said MoHFW. "Not only this, if the endorser of the food product gives to the public any guarantee of the product's efficacy that is not based on an adequate or Scientific justification, the endorser would also be prosecuted under the new law."

All food manufacturers in the country have been given until July this year to comply, after which the regulations will come into force. Indian Minister of Information and Broadcasting Rajyavardhan Rathore told the LokSabha (India's lower House of Parliament) that these regulations'clearly specify' that any person related to the product claims and advertisements, including celebrity endorsements, are party to penalisation. He added that these regulations aimed to make food companies accountable so as to protect consumers.

Regulations to restrict 'frivolous' phrase usage

The regulations that all these fall under are the Food Safety and Standards (Advertising and Claims) Regulations, 2018 which was recently finalised by FSSAI, after the original draft notificationcaused a stir in the industry last November. The final version of these regulations includes the original draft's restriction on 'frivolous' words/phrases on food labels such as natural, fresh, original, traditional, authentic, genuine, real and so unless under special conditions.

"Such restrictions are primarily aimed at restricting an open-ended use of these words/phrases by food businesses on frivolous grounds," said FSSAI. A major update to note in the final version though is when these terms are found in trade marks or brand names.

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"For any trade mark, brand name or fancy name containing adjectives such as the aforementioned terms in the labelling, presentation or advertising of a food such that it is likely to mislead consumer as to [its nature], a disclaimer not less than 3mm in size shall be placed appropriately on the label," added FSSAI.

Specifically, the disclaimer is to state that: "This is only a brand name or trade mark and does not represent its true nature" . Advertisements in respect of a food product that undermines the importance of healthy lifestyles or portrays the food product as a complete replacement of normal meal are not permitted.

Further, food businesses are also prohibited to advertise or make claim undermining the products of other manufacturer so as to promote their own food products or influence consumer behaviour.

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Precision in policy: Academics in India warn of possible iron 'overdose' from food fortification

By Cheryl Tay 26-Feb-2019
–NutraIngredients Asia

Indian government standards for food fortification, meant to combat widespread iron-deficiency anaemia among women, may instead lead to health problems due to excessive iron consumption, academics have warned.

Researchers from the St John's Research Institute (SJRI) in Bangalore and SitaramBhartia Institute of Science and Research (SBISR) in New Delhi have reported that government policies on food fortification and iron tablet supplementation may in fact have harmful effects on women of reproductive age (15 to 49 years old).

More is Less

According to a study published in The Journal of Nutrition , the average daily iron requirement for most Indian women is 15mg, 6mg lower than the current 21mg recommended by an expert group within the Indian Council of Medical Research (ICMR) in 2010.

Explaining this revised estimate, the researchers said they based it on calculations that took into account iron absorption and loss (such as through menstruation) in the body, as well as varying levels of dietary intake across different states.

They also predicted regional differences, arguing that women in Rajasthan would be the most likely to be exposed to excessive iron intake (54%), followed by Uttar Pradesh (15%), Bengal (2%), and Goa and Kerala (1%).

Currently, the tolerable upper limit (TUL) for daily iron intake in India is 45mg for women of reproductive age. AnuraKurpad, SJRI's head of physiology, said prolonged exposure to iron at levels above the TUL could lead to symptoms such as constipation, altered gut bacterial pro_le, gastric acidity or physiological stress.

Ironing out the issues

The Indian government has been pushing for the fortification of food items such as cereals and salt with iron. These efforts to encourage fortification and supplementation are a response to the country's high prevalence of anaemia, especially in women — approximately 50% are anaemic.

But the researchers behind the study suggested this might be an over-correction, saying that the recommended revised intake of 15mg a day could actually lower the need for additional iron consumption in many Indian states.

They added that a daily 10mg of iron from food fortification was sufficient to reduce the number of women at risk of iron deficiency to about 6% to 39% in many parts of the country, while combining daily fortification with weekly supplementation would further lower the range to between 1% and 5%. However, the currently recommended level of fortification and supplementation would cause many women to consume iron in amounts exceeding the daily TUL.

Precision in policymaking

This led the researchers to emphasise the importance of a 'precision-based approach' to ensuring sufficient iron intake. Senior paediatrician and SBISR study member Harsh Pal Singh Sachdev said that in addition to putting women at risk of excessive iron consumption, a one-size-fits-all approach to national policy would also be a waste of financial resources.

Instead, he said the actions taken to fight anaemia should be adapted to maximise the benefits and minimise the risk to the population, which necessitated the need to assess the dietary habits and needs of different populations.

He told NutraIngredients-Asia :"Women in some states already have a high iron intake, and maybe either fortification or supplementation should be dropped there. We need to take serious stock of this situation. The more fortified food items there are, the higher the risk of women being exposed to excessive doses of iron, which is a safety concern. We need to go about this in a rational way, and perhaps assess people on a population level (according to state or region) or even an individual level."

He added that iron insufficiency or deficiency was not the only cause of anaemia, and that the bioavailability — and not just the amount — of iron was more important than many had realised. "Even if there is a high amount of iron in a certain food, it may not be bioavailable or readily absorbed (by the body). For example, the iron intake in Rajasthan is high, but much of it is not bioavailable. It also doesn't make sense to give the same amount of iron to all women in India and think this will prevent anaemia in all of them."

Kurpad told NutraIngredients-Asia : "There needs to be a sound evaluation of what people are eating in each region, as India is heterogeneous in its food habits. From normal daily dietary intake to benefits (lowering iron inadequacy and deficiency) and risks (exceeding the TUL for iron), the evaluation of different fortification or supplementation doses must be done to arrive at a precise dosing regulation for public health purposes."

He added that it was important to note that these recommendations were made in the context of anaemia prevention, not treatment. A senior ICMR official said the council was aware of the study, and had organised a meeting for experts to review the recommended daily requirement for iron, which would be held in March.

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No more chocolate, soft drinks, or fries: UAE bans nine 'unhealthy' foods in school canteens

By Pearly Neo 22-Feb-2019 –Food Navigator Asia

The UAE Ministry of Education has published a list of food items that are no longer allowed for sale in schools , including chocolate, soft drinks and fries.

Students were also told to refrain from bringing those items to schools. Aimed at helping students adopt a healthy diet, the policy will be administered across all seven emirates. The banned items are: Hot dogs and processed meats, Instant noodles, Chocolate bars (with and without nuts), Chocolate spreads, Sweets (including lollipops and jelly), Peanut products, Potato and corn chips, Carbonated drinks, including energy drinks, flavoured water, juice, iced tea, slushies, and eskimo drinks, and Cream cakes and doughnuts.

Misleading free-from labels: Indian regulator FSSAI to set standards for gluten-free claims

By Tingmin Koe 25-Feb-2019 – Food Navigator Asia

The Food Safety and Standards Authority of India (FSSAI) will be coming up with directives on the labelling of gluten-free products, amid concerns current practices from some manufacturers risk misleading consumers.

“FSSAI is also considering removing of low gluten foods category where foods are specially processed to reduce gluten content to a level 20-100mg/kg and its labelling provisions, as low gluten foods also poses a risk to people with celiac disease. These will be notified soon,” an FSSAI official said in response to queries from FoodNavigator-Asia.

As for the people who will be involved in the drafting of the directives, the official said there are members who are experts in specific domains in FSSAI’s Scientific Committee and Scientific Panels.

“Standards are developed after detailed deliberations including stakeholders’ consultations. It’s a very transparent procedure,” the official said.

CEO of FSSAI Pawan Aggarwal also told local media Times of India that they have reviewed current practices, and found many products bearing dubious labels, such as "low gluten". He explained that a product meant for individuals suffering from wheat allergy needs to be completely gluten-free, instead of bearing terms such as "low-gluten".

In addition to drafting new directives, there are also plans to conduct spot checks to verify whether companies are genuinely selling products that are completely gluten-free. According to the FSSAI official, around 1% of the Indian population is allergic to gluten and may develop the celiac disease. In general, the population is not aware of this condition and needs to be educated through sustained awareness campaigns. "The susceptible population needs products that are free from gluten or are made from those cereals which do not contain gluten."

Current regulations

According to a 2016 notification made to amend the Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011, gluten free food refers to food that "consist of or is made of one or more ingredients containing rice, millets, ragi, pulses or legumes." To be qualified and labelled as a gluten-free food, the gluten levels in food should also be below 20mg/kg. These products should also bear the label declaration as spelled out in the FSSAI's packaging and labelling regulations. In addition, the gluten-free products should adhere to labelling requirements.

For example, a food which is suitable for use as part of a gluten free diet shall not be named as "special dietary", "special dietetic" or any other equivalent term. Instead, gluten-free products may be labelled as "this food is by its nature gluten-free".

India's urgent need for gluten-free Gluten-free products are especially catered to individuals suffering from celiac disease, which is characterised by the intolerance to wheat. Celiac disease patients will need to adhere to a 100% gluten-free diet.

Allergic symptoms include diarrhoea and may even worsen to gastrointestinal cancer. However, in the case of India, while the country has the largest population of celiac disease sufferers in the world, researchers pointed out that the amount of gluten-free food available in the country was not matching demand. The lack of gluten-free products was attributed to high product prices, the lack of awareness about the products, and an inefficient value chain for gluten-free products.

Little harmony: How South East Asian countries have been erecting barriers in the name of free trade

By RJ Whitehead 15-Feb-2019 – Food Navigator Asia

At a time when barriers to trade are supposedly being knocked down, a number of South East Asian countries are protecting their own animal protein industries from intra-bloc competition.

In theory, the Association of Southeast Asian Nations is moving towards becoming the world's second-biggest single market after the European Union by eliminating tariffs and harmonising standards between member states. In practice, tariff barriers to trade are being casually replaced by technical and non-tariff barriers to carry out a similar role.

The Asean Economic Community's establishment in 2015 united an enormous overall market of over 600m people worth US$2.6 trillion. A year later, the 10 member countries set out to harmonise their individual standards across all industries in a bid to knock down technical barriers to trade.

Though the AEC process was relatively straightforward, leading to average tariffs of under 1 per cent for meat across the bloc, albeit with exceptions for some processed meat products, the latter has been more challenging in all food-related industries.

Compared to other industry segments, such as electronics, which has reasonably uniform global standards, food industries attract a whole catalogue of safety conformance that differs widely between countries. For example, the process to harmonise sanitary phytosanitary (SPS) standards began last year. It will be interesting to watch the process unfurl—and indeed wait to see if it reaches a satisfactory conclusion. Privately, FoodNavigator-Asia has been told that there is little appetite among the region's main food exporters for SPS standards ever to be harmonised. These include Malaysia and Thailand, which are the only Asean nations to enjoy a surplus in meat and related products.


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Meanwhile, Abhineet Kaul, director of consulting for the public sector and government for Frost & Sullivan said: “Any impact of harmonisation will depend on the effectiveness of SPS standards implementation . As of now, the objectives of SPS are varied—some members, such as Singapore, focus on SPS to ensure food safety, while some others with strong domestic agriculture lobbies use SPS to reduce competition in their domestic markets .”

Meanwhile, a document that agrees the standards and conformance to underpin harmonisation of food processing industries is on the verge of being agreed. One of many such rulebooks drawn up for each industry, this mutual recognition arrangement (MRA) sets out the inspection and certification systems for food products.

However, standards for food safety, quality checks and related measures are very different across Asean members, said Kaul, adding that he would be surprised if harmonisation were completed before 2025. “Harmonisation will take a long-time to get all the members on board to ensure consistency. It will require not just MRAs, but member companies to invest in capital, skills and technologies .”

The prize for full harmonisation, alongside the existing tariff elimination, will be worth all the years of negotiations and bureaucratic activity, however. “Standards in traded protein products would be the same across Asean, from feedstock down to further processed food ,” said Ben Santoso, analyst at RaboResearch Food & Agribusiness. “It will reduce the need to apply notifiable measures. Countries with advanced regulatory apparatus, infrastructure, and cost competitiveness would be better positioned .”

Yet could this all be so clear cut? It is one thing to have a framework that governs standards in all countries across a highly populated region, but it is a wholly different matter to be able to police this without the necessary mechanisms in place—or even in the pipeline.

Though The AEC is widely compared to the European Union, in that it seeks to create a free-trade area, their approaches are very different when it comes making sure that erstwhile barriers are consigned to rubble. “The idea in theory is that Southeast Asia should be like the EU, but the fact is that there is no recourse if an exporter encounters an issue in Asean. That will always be a difficulty ,” said Sara Aparicio Hill, an associate at K&L Gates law firm, who specialises in regulatory and compliance matters in both the trade blocs. “The biggest difficulty for the AEC is the fact that none of the member states has given away any of its sovereignty .”

In the EU, for example, when a member state takes protectionist measures and does not comply with the provisions of a free-trade treaty, an exporter can take that member state to court by filing a complaint to the European Commission. “This is not an option in Asean: there are only political ways to resolve it, and that’s not good enough ,” said Aparicio Hill, adding: “Politics only goes so far .”

The EU has been successful in free trade because from the outset it set the bar very low when defining barriers to entry to the point that any minor stumbling block, such as an obstructive email from an official, would be seen as a non-tariff barrier. By contrast, Asean countries have continued their protectionist stance since the removal of tariff barriers, Aparico Hill says. “Companies are experiencing difficulties in having their export documents approved, after which another government agency might cancel the approval. These are the typical protectionist measures you would encounter. Then getting no response on licences, being very tardy, that kind of thing .”

It would be helpful if one or more major meat exporters were to take the lead in drafting Asean-wide harmonisation so that their companies could export their products to other countries that are net importers, though the spirit of co-operation is not strong in trade discussions, as is evidenced by intra-Asean trade figures for meat. Of the US$12bn in agriculture commodities traded between the 10 Asean nations, meat and related products comprise less than four per cent, according to Frost & Sullivan. In contrast, this figure rises to 10% when it comes to trade with the rest of the world.

Put another way, total intra-Asean trade in meat and related products is close to just 10% of overall trade in this category by Asean members. Moreover, its growth rate has also lagged behind the growth rate of total trade. According to Kaur, this is unlikely to change for the foreseeable future, as AEC nations continue to feather their own nests.

“I do not expect the share to rise significantly due to cheaper meat imports from overseas, and the focus of Asean countries to improve share of domestic production.”

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'Misbranded nutraceuticals': Indian trade body chief calls for partnership, not punishment, from regulators

By Cheryl Tay 11-Feb-2019 – NutraIngredients Asia

A trade association director is calling for better multi-sectoral cooperation in India, to minimise the need for authorities to clamp down on nutraceutical and supplement companies in India for labelling violations.

This comes after the Food Safety and Standards Authority of India (FSSAI) issued a letter about what it terms 'misbranded nutraceuticals', instructing authorised officers to curb sales of such products. According to the regulatory body, a spate of nutraceutical products and health supplements on the market that flout labelling regulations has been reported.

In particular, it highlighted products that contained gelatine shells or ingredients of animal origin bearing the green dot on their labels to signify they were safe for vegetarians to consume. In the letter, the FSSAI's joint director of regulatory compliance, Parveen Jargar, stated: "This is in contravention of Food Safety and Standards (Packaging and Labelling) Regulations, 2011, which mandates the applicability of 'vegetarian' or 'non-vegetarian' on the labels of pre-packed food products. It would be considered misbranding if the product fails to comply with the norms. All food products falling under the category of nutraceuticals / health supplements shall have to comply with the FSS regulations for health supplements, nutraceuticals, food for special dietary use, food for special medical purposes, functional food, and novel food released in 2016, as well as FSS regulations on packaging. Failing to do so would attract penalties in accordance with the law."

Jargar further said that state authorities had been instructed to "initiate a strong enforcement drive to keep a check on such food products violating the norms" , and urged these authorities to take appropriate action against food business owners (FBO) found in violation of the law.

Details of deception

Sandeep Gupta, vice chairman of the Indian Drug Manufacturers' Association's (IDMA) nutraceutical committee and director of the Expert Nutraceutical Advocacy Council (ENAC), told NutraIngredients-Asia : "Under the FSS Act, there are no exclusions. If there is even a trace of animal origin in the processing of any food product or ingredient, it must carry the brown logo (that signifies it is) non-vegetarian. Any FBO manufacturing, marketing, distributing or importing products containing ingredients or additives of animal origin but using the green vegetarian logo will be flagged for violation."

He added that there were other chargeable offences regarding packaging and labelling compliances, such as

- misleading health claims
- failure to declare the presence or type of food additives used
- leaving out the name or address of the manufacturer
- erroneous nutritional values
- leaving out or stating the wrong shelf-life
- the absence of the FSSAI logo or FBO licence number
- not stating the RDA
- using unspecified ingredients or additives

Industry inspection

To minimise the number of misbranded nutraceuticals on the market, Gupta said, "Industry would need to follow stringent self-regulation by maintaining SOPs on all levels, and to keep monitoring themselves by referring to a checklist of dos and don'ts. There must also be continuous awareness, and training programmes for all employees to ensure quality control and assurance."

He added that trade associations should 'consistently and periodically' conduct specific programmes on food safety compliance, maintaining engagement among industry stakeholders, and spreading education and awarenes. At the same time, he said, "There must be continuous dialogue with the FSSAI to create a framework for a good ecosystem of legitimate compliances to support public interest with no compromises."

Regulatory responsibility

Gupta also noted that unlike other food categories, the nutraceutical sector tended to be considerably well organised, employing highly qualified healthcare professionals, researchers, nutritionists, microbiologists, food technologists and pharmacists. However, he then added that professional expertise and best practices were not quite enough to curb incidences of misbranded nutraceuticals.

He said, "Whatever expertise and best practices FBOs may adopt in a technical and science-led environment, they should be supported by practical timelines. If the FSSAI expects too many frequent changes, this will disturb the business operation, hampering productivity and creating losses. "There should be practical timelines and a fixed periodic review — perhaps annually — after which changes should be called for via notifications."

Corporate cooperation

Additionally, he said that with the help of the Standard Review Group, the FSSAI and nutraceutical firms should develop joint awareness programmes for public interest on the benefits of nutraceutical products, "which are important for public health and to prevent the risk of disease burden in the population" . Gupta also cautioned against using fear-mongering tactics to ensure compliance. "The motto of the FSSAI and industry should be to create education, awareness, engagement and networking amongst the stakeholders. "They should establish a task force to monitor and closely work with each other to continually improvise the practices, rather than create fear via enforcement notifications amongst stakeholders."

Fortification fight: Help for Indian food and nutrition firms to meet implementation challenges

By Cheryl Tay 06-Feb-2019 – Food Navigator Asia

The Food and Drug Administration (FDA) department in Pune, Maharashtra, has announced a programme to fortify staple foods in the city, supported by a package of support for food and nutrition firms.

The Global Alliance for Improved Nutrition (GAIN), an NGO founded in 2002, will now offer technical support in the form of training programmes and product testing to make it easier for companies to fortify foods such as wheat, rice, milk and oil. According to Pune's FDA commissioner, Suresh Deshmukh, the department is the first in Maharashtra to have developed such an initiative. He added that the main purpose for doing so was to tackle India's persistent problems of blood-related disorders like anaemia, as well as vitamin A and D deficiency, which have led to bone disorders, defective eyesight and brittle bones even among young children.

FDA effort

Speaking to NutraIngredients-Asia, GAIN's head of programmes, Deepti Gulati, said the NGO was already active in 18 states in India, and had been working closely with the FSSAI on the fortification of wheat, rice, milk, and edible oil. In June last year, GAIN organised a conference in Maharashtra, where the Deshmukh led the agenda on food fortification. Soon after, the NGO began working with the government to introduce fortified wheat flour and edible oil into its publicly funded programmes. Gulati added: "We also started working with industry partners to build up their capacity to appropriately and adequately fortify rice and milk for the open market."

To ensure this can be achieved, the FDA has begun organising training workshops for food suppliers and manufacturers to educate them on food fortification and encourage them to adopt the practice. This started with a pilot workshop for manufacturers in Pune on January 18, which was overseen by FDA minister of state Girish Bapat. Along with other NGOs such as the Vatsalya Foundation, GAIN provided technical support by helping to run the workshop's training programmes.

Industry induction

Gulati said: "Mr Deshmukh kicked off this initiative to promote food fortification in a big way, so we will continue to work with the FDA to sensitise our industry partners to the importance of food fortification and how they should voluntarily adopt it to contribute to public health." She went on to say that after the 'sensitisation' process, GAIN would provide 'hands-on training' to industry partners "on how to appropriately and adequately fortify their products with micronutrients, such as iron, folic acid and vitamins A, B12 and D in milk, and vitamins A and D in oil" .

"To ensure these products are compliant with FSSAI standards, we will randomly select food items at the time of packing and from the marketplace for testing at government-certified labs, so we can ascertain the presence of micronutrients both qualitatively and quantitatively. "We will then share the results with the industry, and in case any of these products are not up to scratch, we will give them refresher training so they can meet national standards."

Once the products satisfy FSSAI requirements, GAIN will then help the companies involved to register for the +F logo — the official logo signifying food fortification approved by the FSSAI. The NGO will also advise its industry partners on the kinds of claims they are and are not permitted to make on their product labels. Gulati said,


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"They can't make tall, unrealistic claims, but there are specific claims they can make that are government-approved, and we help them to understand what these are and where they apply. We will also share with them our experiences with consumers to help them better understand their needs and preferences. At the state level, we will organise training programmes to educate food safety officers on how to avoid adding to their products vitamins and minerals that may actually be contaminants."

Voluntary, not mandatory

Gulati also noted that despite the past controversy surrounding the FSSAI and its alleged push for the mandatory fortification of staple foods, the regulator did not, in fact, intend to advocate for mandatory food fortification. "The FSSAI does not push for mandatory fortification, but it does want to create a conducive environment for fortification by helping to set up partnerships with industry and provide the necessary training to make this happen. "However, the government itself has decreed mandatory fortification of salt with iodine, and hydrogenated oil with vitamin A, though it is now looking to ban hydrogenated oil due to its trans fat content."

On GAIN's part, Gulati said the NGO also encouraged manufacturers and suppliers to voluntarily adopt fortification, as it would benefit not just industry but the Indian people in general. She also said that food fortification was a complementary strategy that offered convenience and affordability to consumers, as opposed to reliance on dietary supplements, which were often too costly for the under-privileged demographics prone to malnutrition. She added that while things were off to a promising start, the road ahead would be a long one. "This is a great initiative, but there's still a long way to go. Pune is a cosmopolitan city, so the staple foods sold there come from many other cities and states, and as such, are not necessarily all fortified. At the city level, the government cannot dictate that all staple foods sold there must be fortified. However, it can encourage companies to fortify such products, and we will help them to do so. It will require a continual, multi-sectoral effort."

Warning label woes: What kind of reformulation is best for your product?

By Niamh Michail 04-Feb-2019 – Food Navigator LATAM

Reformulating to remove warning labels by cutting salt and fat makes a product seem healthier than creating a health halo by adding fiber or vitamins, Chilean researchers have found.

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In 2015, Chile included mandatory front-of-pack nutritional warning labels on packaged foods - part of a raft of measures aimed at reducing the country's rising obesity rates. "Nutritional warnings are not expected to cause radical changes in consumers' eating patterns," write researchers from La Frontera University in Chile in Food Quality and Preference. "Instead, they are expected to encourage consumers to select the most healthful option within a product category. [...] This policy offers the food industry incentives to reformulate their products, particularly if they are the first movers in the category."

In a study published last week, the researchers therefore wanted to determine which type of product reformulation had the biggest impact on perceived healthiness and willingness-to-buy on frankfurter sausages: salt and fat reduction or an added fiber or low cholesterol claim. Questioning nearly 500 Chilean adults in an online survey, they found that products without a warning label for salt or fat were seen to be the healthiest and had the biggest purchase intent. Artisan sausages were also seen as healthier compared to the industrial brand.

'Reformulate key nutrients'

"The results stress the need of food companies to engage in product reformulation strategies targeted at reducing the content of key nutrients associated with non-communicable diseases," conclude the researchers. "On the contrary, other strategies aimed at increasing the content of positive nutrients in the product do not seem to have a relevant effect on consumers' healthfulness perception and purchase intention of a relatively unhealthful product category such as frankfurters."

In the survey, participants were given a choice between two sausage brands – a well-known industrial one and an artisanal brand - and were shown a variety of sausages. Some had warning labels for salt and saturated fat while others had the health claims 'contains fiber' and 'reduced in cholesterol'. Reduced salt and fat levels were indicated by the absence of a warning label for these nutrients. Under Chilean law, standard frankfurters must have nutritional warnings for high sodium and high saturated fat content.

Sodium and fat reduction had the largest effect size, causing an increase in purchase intention of 0.4 points in the 9-point purchase intention scale.

Reformulated frankfurters that had no nutritional warning for high sodium and saturated fat were seen as more healthful than those that had at least one warning, and also had a higher purchase intent.

Artisan healthier than big brands
Consumers also perceived the lesser-known artisanal brand to be healthier than the well-known industrial brand, which positively influenced the purchase intention. "This may be associated with the fact that industrial food production has been associated by consumers with the use of artificial additive s," the researchers suggest. The high fiber claim had a "significant but small impact " on perceived healthiness and purchase intent while the low cholesterol claim had a minor effect on the industrial brand. “This result can be explained considering that the presence of nutrient or health claims can lead to negative inferences about the taste and naturalness of products. In addition, consumers may have perceived incompatibility between unhealthful food carriers, such as frankfurters, and functional ingredients.”

Meanwhile, the health halo imparted by nutrient claims was not great enough to override the negative impact of a nutritional warning, the researchers found. According to the study authors, Frankfurter sausages (known as salchichas Vienesas, or Viennese sausages in Spanish) are popular in Chile for their convenience and are particularly enjoyed by children.

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Health claims on packaging: Simplicity and scientific substantiation key for consumers

22 Feb 2019 ---

Health and nutrition messaging on packaging should be as simple as possible, as well as scientifically substantiated.

This is according to the findings from a 4-year EU-funded research project, CLYMBOL – Role of Health-related Claims and Symbols in Consumer Behavior – which studied consumer understanding of health claims and symbols on packaging. It is hoped that the findings will inform future policy development to align “consumer protection issues as well as public health and food marketing communication interests.” The CLYMBOL project included more than 20 empirical studies that generated a large number of evidence-based policy and communication recommendations using a three-round Delphi method – an interactive forecasting technique which relies on a panel of experts. All these recommendations have been evaluated by 100 European stakeholders from science, business, government and NGOs to produce a priority list for the successful development of front-of-pack (FOP) labels and health claims.

Public policies are essential vehicles for improving food environments for consumers, the researchers note, and EU legislation exists in regard to the use of health claims and symbols to harmonize their use and to avoid misleading consumers. A range of health symbols are used globally; for example, the Netherlands had used the Choices logo for years, while in Asia, a number of countries also use health logos. Singapore, Thailand and Malaysia have opted for the Healthier Choice Symbol, while the Philippines has introduced its own “Wise Eat” logo and Vietnam has chosen a logo based on the Choices system.

Tooth-friendly logo

Choices logo

Keyhole symbol

The researchers defined health symbols as "symbols used on foods that fulfill certain nutritional criteria agreed by a set of stakeholders, which expressly indicate a relationship between the food bearing the symbols and health," Christine Yung Hung, first author and Postdoctoral Researcher and Lecturer at the Faculty of Bioscience Engineering, Ghent University, Belgium, tells NutritionInsight. "This could be a specific outcome, such as the tooth-friendly logo, or a general health outcome, such as the Choices logo or the Keyhole symbol."

"With public health goals in mind, health claims and symbols are expected to support consumers in making more informed and healthier food choices, as well as foster industry competitiveness," says the study, which was published in Nutrients. The highest-rated finding was related to consumers' favorable attitude towards health claims with shorter and less complex messages and health symbols with a visible endorsement. Meanwhile, there was a clear consensus that health claims need to be scientifically substantiated and credible but phrased without using overly complex scientific wordings, in order to be meaningful for consumers.

Another interesting finding, according to Yung Hung, was related to the prices for products with health symbols. "Although previous studies based on scanner data found that consumers are willing to pay higher prices for products with health symbols, there was a clear consensus that stakeholders did not agree with the recommendation of increasing prices for products with health symbols," she explains. Regarding policy, stakeholders from academia and industry believe that efforts should focus on how to improve motivation and interest in healthy eating among consumers. Innovative ways to communicate this importance should be investigated, such as information campaigns. Targeted multi-media campaigns aimed at promoting the use of health symbols could affect the importance consumers ascribe to healthy foods while shopping, for example. Further tactics could include product reformulation to "change the possible negative association between healthiness and tastiness."

What about nutrition labels?

Nutrition labels, such as the traffic light system, differ from health symbols as they specify the content of nutrients in a given product but do not communicate any "claim." In some countries, government regulations for nutrition labeling have been in place for years while others have only recently developed a framework for the provision of nutrition information. In both circumstances, the provision of nutrition information on FOP is becoming an increasingly prominent policy issue.

Last year, the European Food Information Council's (EUFIC) 2018 edition of the Global Update on Nutrition Labeling similarly noted that appropriate and meaningful nutritional information should be based on science and take into account consumer use, interpretation and understanding of different labeling schemes. The global diversity in nutrition label use is clear, however. In Europe, color-coded schemes may come under consideration in Portugal, Poland and Ireland, while Germany plans to develop an understandable and comparable FOP label, but has not elaborated on the format.

However, regarding health claim symbols, Yung Hung notes that there was was a limited degree of heterogeneity within the European countries surveyed. "The studied countries often shared similar top- and bottom-three rated health claims. Based on user segmentation, health claim use was higher among consumers from Spain and Greece and lower among consumers from the Netherlands."

Earlier this year, Spanish supermarket chain Eroski introduced a handful of own-brand products featuring Nutri-Score labeling. This made Eroski the first distribution company in Spain to incorporate this "advanced nutrition" labeling. The Nutri-Score system classifies foods into five levels, indicated by colored letters – from "A" in dark green to "E" in dark orange. It is calculated on the basis of the calories, the nutrients which are beneficial for our health – fiber, protein, amount of fruit, vegetables, nuts and pulses – and nutrients whose intake should be reduced – saturated fat, salt and sugar – per 100 grams of the product.

The labeling system has been validated by the Ministry of Health and the EU, is supported by the World Health Organization (WHO) and has been backed by more than 8,500 Eroski member customers who consider it to be "simple, useful and convenient." The importance of how the nutritional content of foods is communicated via labels to consumers has come under the spotlight in recent years, especially when seemingly healthy products are uncovered as containing high levels of sugar or salt. Policy can continue to inform how to best communicate to consumers via products packaging and studies such as CLYMBOL can potentially advise its formation.

By LaxmiHaigh

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