



PFNDAI

PFNDAI Bulletin

JULY 2018

FOOD, NUTRITION & SAFETY MAGAZINE

FOOD BASED CLINICAL TRIALS

Also Inside

Bioplastic

**Report on PFNDAI workshop on
Approval Process for Health Claims**

PROTEIN FOODS AND
NUTRITION DEVELOPMENT
ASSOCIATION OF INDIA

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this pleasant experience provide 'mouth - watering'...
indication of enjoyment of food*

*taste is a valued concept in food..... Creating consumer appeal
through taste is our speciality.....*



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INDEX

Editorial	2
Food Based Clinical Trials	3
Coming Events	6
Bioplastic	7
Extension of Dietary Fiber Definition by USDA	14
Report on PFNDAI workshop on Approval Process for Health Claims	17
Regulatory Round Up	22
Research in Health & Nutrition	24
Food Science and Industry News	41
Regulatory News	46

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EDITORIAL

There is a lot of talk about HFSS Foods and there are now regulations about marketing these food products to schools. Yes, children should not be exposed to these when there is already a crisis of obesity among school children. Part of the reason for obesity is lack of physical activity and most schools do not have large enough grounds for children to play and have physical training. This part also must be looked into by government when trying to solve obesity. However, role of too many calories cannot be denied.

When children are told not to eat or drink any particular food or beverage, they are likely to go for it pointedly. We should try to create awareness among school children about nutrition and calories and too little or too much of these having adverse effects on health.

FSSAI has recently prepared a nice video in which a famous actor has very effectively talked about the reduction of salt, sugar and fat in our foods. This is very essential. More such videos must be prepared and also awareness programs should be conducted in schools.

Industry should also try to prepare products with this in mind. As the health professionals are criticizing the kinds of products that are marketed to children, industry should come up with healthier versions of these. Already some companies have started developing and marketing products with reduced fat, sugar and salt in their popular products. Others have taken pledge to reduce these ingredients by substantial amounts within a specific period.

Many surveys have also shown that much of

sugar, salt and fat that is consumed by adults and children is at home, including food consumed at restaurants and ordered to be consumed at home. We need to look at both regulations and awareness programs to focus on this as well. At present consumption of packaged food products is quite low in India. It is rising rapidly but still it is small. So even when they reduce their calories and salt, the overall effect will not be great.

To make effective reduction of consumption of these ingredients we need to look at the entire basket of food, both packaged food products and foods cooked and eaten at home as well as those that are ordered from or eaten at restaurants.

When awareness increases, people will start asking for healthier foods even at restaurants and they will start making them. Even food products will have newer formulations. One very good example is bread. There was hardly any whole wheat or brown bread. Only white bread was available. Now it is difficult to find white bread if one wants it. This is not just because of awareness but also industry saw opportunity in market for brown bread. Hope we have many new products that are low in fat, sugar and salt as well as products having higher protein, fibre and micronutrients that promote health.

Prof. Jagadish S. Pai,
Executive Director,
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FOOD BASED CLINICAL TRIALS



Dr. B Sesikaran,
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By

&

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A health claim is “any representation in labeling or advertising that states, suggests, or implies that a relationship exists between the consumption of a food or a constituent in the food and a person’s health”. (Agrifood Canada 2013) Food Health Claims are statements regulated by ‘FSSAI’ (Food Safety and Standards Authority of India) that simplify a science-based food health connection into clear public health messages. The regulations help the consumer in choosing the products accordingly and guard against misleading the public with unsubstantiated health claims.

For substantiation of a food health claim, it is essential that:

- The studies for supporting the food health claims must be of a superior quality, non-biased human clinical studies and be assessed in a systematic, comprehensive and transparent manner.
- The supporting evidence must be from studies to determine causality, safety, population generalizability and strength of the association.
- The study design, its conduct and the methodology to be used must be

optimized for reporting food based human clinical trials. (Ottawa, 2013; Best Practices for Food-Based Clinical Trials; Agriculture and Agri-Food Canada)

The first step in designing a Clinical study is to generate a Hypothesis or the Research question which would answer and signify the need for research. This step is essential in determining the objectives, study design, test product and outcome measures. The study design must be such that, it answers one primary question at a time; for which the question must be clear and precise.

There may be two outcomes of the study- primary as well as secondary outcome. The study must focus on deriving the primary outcome and shall be conclusive at the end of the study. The secondary outcome might be adjunct which need not be conclusive as the primary outcome but can be suggestive if an appropriate study design is formulated.

Determinants of Study Outcome:

1. The outcome of the study should be measurable.
2. The exposure i.e., the type, dose

and duration of any kind of exposure should be known.

3. There may be a possibility of being selective of subjects for sampling. Therefore, there should be no bias.

4. Other than the product, various other factors may affect the outcome; which are known as confounders that should be managed/controlled.

5. Role of Chance/ the confidence limits i.e., the probability of the similar outcome appearing if the study were to be repeated.

Before planning a study, one must clearly define the target population, on which the study would be subjected without any bias. For example, if the target populations are students, the researcher must cover students from various socio-economic classes so that the study would yield valid and reliable results. One thing a researcher must understand that larger sample will improve only the reliability of the results and not the validity. The validity of the study results must be evaluated to see whether it is internal (true for only the study sample) or external (valid for entire population).



Image © iStock.com/Madzia71

Sampling:

In a clinical study, the sample i.e. the number of participating subjects and the methods used for sampling are of utmost importance. A sample should be such that it represents the whole population properly. The minimum sample size must estimate the population mean.

The sampling could be either (1) **Non random Sampling** or (2) **Probability Sampling**.

Non- random sampling is a purposive sampling where the selection is subjective. The researcher attempts to obtain sample that appears to him/her to be representative of the population.

• **Convenience Sampling-** It is when one simply stops someone at any random place according to convenience, asking people if they would answer their questions.

Probability Sampling is the method of sampling that utilizes some form of random selection. In order to have a random selection method, one must set up some process or procedure that assures that the different units in the target population have equal probabilities of being chosen.

• **Simple Random Sampling-** It is the method of selecting 'n' units out of the 'N' such that everyone has an equal chance of being drawn.

• **Systematic Sampling-** It is the method of sampling with an orderly layout which makes it possible to go

systematically through the whole site.

• **Cluster Sampling-** The sampling units consist of a group or cluster of smaller units or elements or sub units.

• Prospective

Cohort Design- It is the method of identifying a risk factor (present or absent) in a population and following them over a period of time and then measuring the outcome variables (disease present or absent).

• **Retrospective Cohort Design-** It is the method of identifying a cohort or group of people who have a health problem now and then go back in history to see the presence or absence of the corresponding risk factors.

• **Randomized Controlled Trials-** Similar groups of individuals from same source population are allocated at random to receive or not to receive an intervention, then observed for occurrence of outcome(s).

• **The Double Blind Method-** It is the method where neither the participants nor the experimenters are aware of the particular treatment given to the participants. A randomized double blind controlled trial data is the most reliable evidence of efficacy.

• **Two Sequence, Two period Crossover Design-** It is the method wherein the participants are given two treatments in a randomized manner at different times. For example, the participant is given 'product A' for a period of time, followed by a washout period after which the

participant undergoes cross-over and then receives 'product B'.

The individual outcomes are then measured and compared to find the best one.

Controls: Control subjects may be without any intervention or given a placebo treatment or another test substance or the same test substance at a lower dose etc depending on the product and the design of the study

Statistical significance:

Difference between two groups always exists. The threshold of that difference should be predetermined i.e., How much should the two groups be different to consider as significant.

For example,

i. $p < 0.05$ means if a test is repeated 100 times, the result will be the same for 95 times. Here, the chances of observed result being due to chance are less than 5%. The confidence level is 95%

ii. $p < 0.01$ means; 99 out of 100 times, the result will be same. Here, the chance is only 1%. Confidence level is 99%

iii. $p < 0.001$ means 99.9 out of 100 times, the result will be same. Here, the chance is only 0.1%

The Study design is made based on the predetermined level of significance which is acceptable to the investigator.

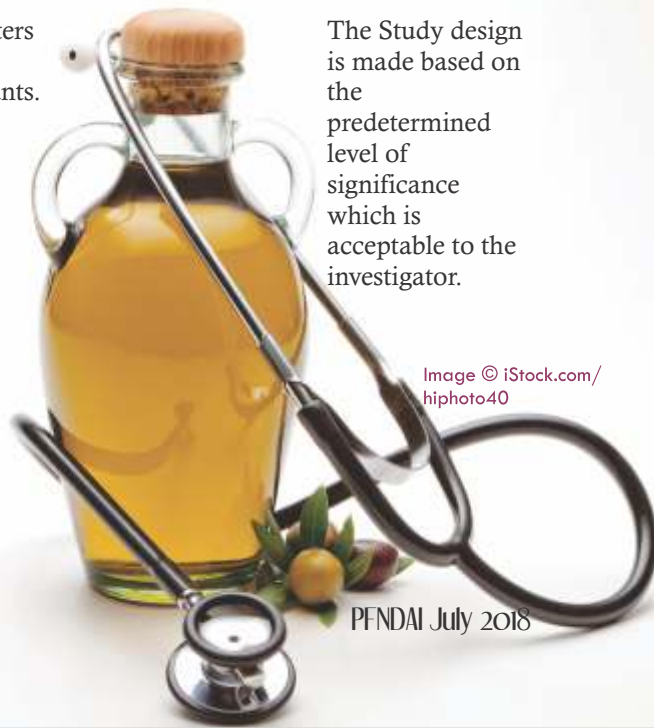


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GOOD BUY! NUTRELA SOYA. GOODBYE! INDIA'S PROTEIN-DEFICIENCY.



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

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



The duration of a study will be determined by the outcome that we intend measuring. Some outcomes may take a few weeks to change while some need over a year to be affected by the intervention. Study durations should be appropriate to the test substance and the desired outcome

Ethical issues:

The researcher must involve the full and informed consent of participating human subjects and shall be closely monitored and supervised by appropriate regulatory authorities. The human subjects selected for the study must be approved by an ethics committee (Institutional Review Board) before permission is granted to run the trial.

Steps in systematic Review of literature

1. Frame questions for a review and identify relevant work. Eg. Is substance X shown to be beneficial

in condition Y

2. The search for studies should be extensive. Both electronic and print.

3. Reasons for inclusion and exclusion should be recorded.

4. Selected studies should be further subjected to design-based quality checks- These detailed quality assessments will be used for suitability of meta-analysis.

5. Summarizing the evidence- Tabulation of study characteristics, quality and effects as well as use of statistical methods for exploring differences between studies and combining their effects (meta-analysis).

6. Exploration of heterogeneity and its sources should be planned in advance.

7. Interpreting the findings.

8. Exploration for heterogeneity should help determine whether the overall summary can be trusted, and, if not, the effects observed in high-quality studies should be used for generating inferences.

(Khan et al (2003) Journal R Soc

Medv.96 (3); Mar)

By Dr. B. Sesikeran- Ex-Director, NIN

&

Ms. Swetchha Soni- Nutritionist, PFNDAI.



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COMING EVENTS

Food Ingredients India & Health Ingredients (Fi India & Hi)

August 30- Sep 1, 2018

India Expo Mart, Greater Noida

W: <https://www.figlobal.com/india/>

Aahar: International Food & Hospitality Fair

August 23-25, 2018

Chennai Trade Centre, Chennai

Thanjavur, Tamil Nadu

T: +91 87440 88116

E: maurya@aifpa.net

National Seminar on Indian Dairy & Food Industry

September 14-15, 2018

NDRI Grad. Association

National Dairy Research Institute, Karnal

T: +91 9812077005

E: ndri.grads@gmail.com

W: www.ndrigrads.com

Nutrition 2018

International Conference on Nutrition, Health & Aging

September 26-27, 2018

Frankfurt, Germany

E: info@madridge.org

W: <http://nutrition.madridge.com/>

Annapoorna

World of Food India 2018

Sept 27-29, 2018

Bombay Exhibition Centre, Goregaon,

Mumbai

T: +91 22 2496 8000,

E: narendra.naik@ficci.com

W: www.ficci.com

IDACON 2018

Annual National Conference of Indian Dietetic Association

Sept 30- Oct 2, 2018

Brilliant Convention Centre, Indore (MP)

T: 09977600104,

E: idacon2018@gmail.com

W: www.idacon2018.com

IUFoST 2018 India

World Congress of Food Sci & Tech

October 23-27, 2018

Mumbai

W: [https://www.iufost2018.com/](https://www.iufost2018.com/index.php)

index.php

IFCON 2018

AFST (I)

December 12-15, 2018

CFTRI Mysore

Thanjavur, Tamil Nadu

T: +91 821 2515557, 2518670

E: ifcon2018mysore@gmail.com

W: <http://afsti.org/ifcon>

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BIOPLASTIC

According to European Bioplastics (EUBP), bioplastics are bio-based, biodegradable, or both. The term “bio-based” describes the part of a material or product that is derived from biomass.

Biodegradability is an inherent property of certain polymers that can be suitable for specific applications, e.g. bio-waste bags. Biodegradation is a process in which materials, with the help of microorganisms, are metabolised. When materials bio-degrade under conditions and within a timeframe defined by the standards, they can be certified and labelled as industrially compostable.

What are the advantages of bioplastics?

Bio-based plastics can help to reduce the dependency on limited fossil resources. Bio-based plastics are made from renewable sources and gradually substitute fossil resources used to produce plastics with renewable resources (currently predominantly annual crops, such as corn and sugar beet, or perennial cultures, such as cassava and sugar cane).

Bio-based plastics also have the unique potential to reduce greenhouse gas emissions or even be carbon neutral. Plants absorb

atmospheric carbon dioxide as they grow. Using plants to produce bio-based plastics constitutes a temporary removal of greenhouse gases (CO₂) from the atmosphere.

This carbon fixation can be extended for a period of time by establishing ‘use cascades’ that means if the material is being reused or recycled as often as possible before being used for energy recovery. In energy recovery, the previously sequestered CO₂ is released and renewable energy is being produced.

Another major benefit of bio-based plastics is their potential to ‘close the cycle’ and increase resource efficiency. Depending on the end-of-life option, this can mean:

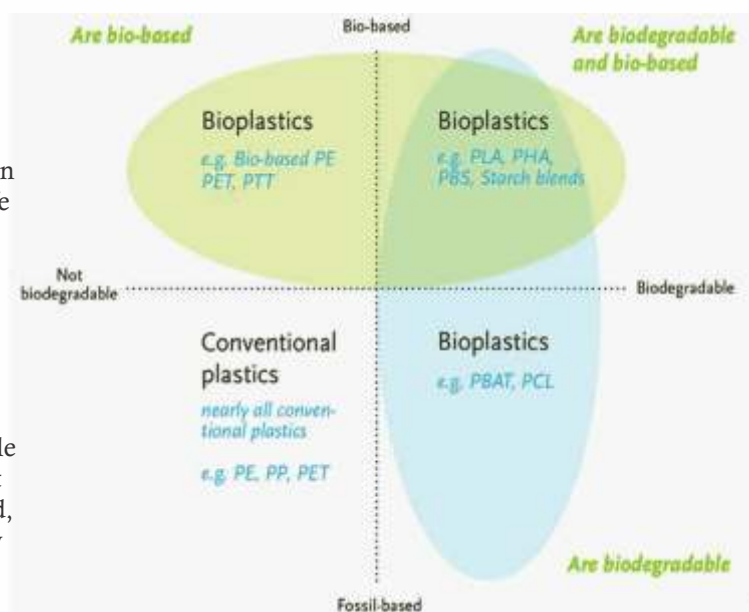
- ❖ Renewable resources are used to produce bio-based, durable products that can be reused, mechanically

recycled and eventually incinerated whereby renewable energy is being produced.

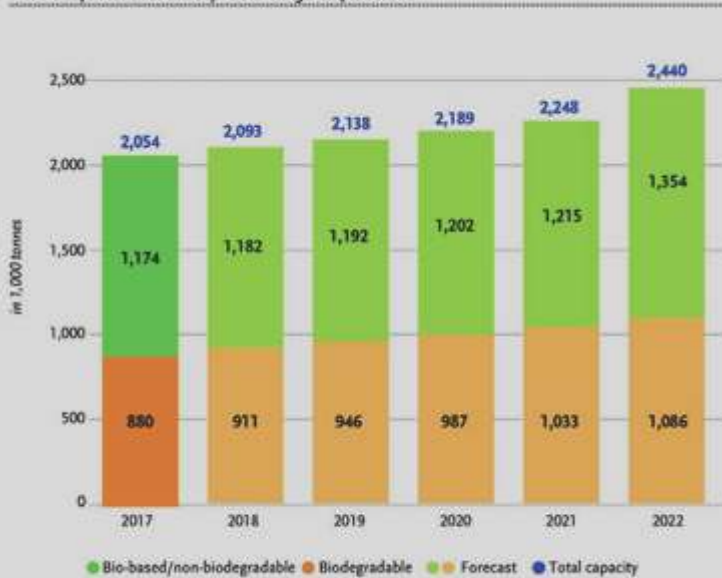
- ❖ Renewable resources are used to produce bio-based, biodegradable and compostable products that can be organically recycled (industrial composting and anaerobic digestion) at the end of a product's life cycle and create valuable biomass (humus) during the process. The humus can be used to grow new plants, thus closing the cycle.

Furthermore, plastics that are bio-based and compostable can help to divert bio-waste from landfill and

Figure: Material coordinate system of bioplastics (source: EUBP)



Global production capacities of bioplastics



Source: European Bioplastics, nova-institute (2017).
More information: www.bio-based.eu/markets and www.european-bioplastics.org/market

increase waste management efficiency across Europe. For more information on that, please see the section on end-of-life.

What are the main characteristics of the bioplastic market?

The bioplastics industry is a young, innovative sector with an enormous economic and ecological potential for a low-carbon, circular bioeconomy that uses resources more efficiently. The current market for bioplastics represents around 1% of the about 320 million tonnes of plastics produced worldwide annually, the market for bioplastics is growing dynamically.

With a growing number of materials, applications and products, the number of manufacturers, converters and end users is increasing steadily. Significant financial investments have been made in production and marketing to guide and accompany this development. Bioplastics are a relevant and leading segment of the plastic industry.

The factors driving market development are both internal and external. External factors make bioplastics the attractive choice with high rate of consumer acceptance

and increased consumer demand for more sustainable options and products. The effects of climate change, price fluctuations of fossil materials, and the necessity to reduce the dependency on fossil resources also contribute to bioplastics being viewed favourably.

From an internal perspective, bioplastics are able to improve the balance between the environmental benefits and the environmental impact of plastics. Life cycle analyses demonstrate that some bioplastics can significantly reduce CO₂ emissions compared to conventional plastics. The increasing utilisation of biomass in bioplastic applications has two clear advantages: renewability and availability.

According to the latest market data compiled by European Bioplastics, global production capacity of bioplastics is predicted to grow by 20 percent in the medium term, from around 2.05 million tonnes in 2017 to approximately 2.5 million tonnes in 2022.

Today, there is a bioplastic alternative for almost every conventional plastic material and corresponding application. Bioplastics are moving out of the niche and into the mass market. The current market for bioplastics is characterised by a dynamic growth rate and a strong diversification. With a growing number of materials, applications, and products, the number of manufacturers, converters and end-

users also increases steadily. Big brand owners including Danone, Coca-Cola, PepsiCo, Heinz, Tetra Pak, Unilever and L'Occitane in the packaging market, or Ford, Mercedes, VW, Toyota in the automotive market have launched or integrated bioplastic products. With strong brand names driving the development, market penetration is gaining speed.

Can fossil-based plastics be completely substituted by bio-based bioplastics?

Today, there is pretty much nothing that bioplastics can't do. For almost every conventional plastic material and application, there is a bioplastic alternative available that offers the same or in some cases even better properties and functionalities. The main challenge faced by the bioplastics industry is not of technical nature but the lack of effective policy measures or regulatory incentives to encourage a full-scale market entry. According to a PRO BIP study conducted by the University of Utrecht in 2009, bioplastics could technically substitute around 85 percent of conventional plastics. To make all plastics from bio-based materials is not a realistic short- or mid-term development.

What are the economic advantages of bioplastics?

As an important part of the bioeconomy, bioplastics are a future lead market offering job creation, development of rural areas and global export opportunities for innovative technologies. In 2013, the bioplastics industry accounted for around 23,000 jobs in Europe. With the right framework conditions in place, this number could increase more than tenfold by 2030, with up to 300,000 high-skilled jobs being created in the European bioplastics sector. The European bioeconomy sectors are worth 2 trillion euros in annual turnover and account for 22 million jobs in the EU. That is approx. 9 percent of the EU's workforce.



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Are bioplastics more expensive than conventional plastics?

The cost of research and development still makes up for a share of investment in bioplastics and has an impact on material and product prices. Additionally, the currently low oil prices are making it difficult for bioplastics to achieve competitive pricing levels compared to conventional plastics at present. However, prices have continuously been decreasing over the past decade.

As more companies and brands are switching to bio-based plastics, and as production capacities are rising, supply chains and processes are becoming more efficient, and prices have come down significantly. With rising demand and more efficient production processes, increasing volumes of bioplastics on the market and oil prices expected to rise again, the costs for bioplastics will soon be comparable with those for conventional plastic prices.

Where are bioplastics already being used?

For almost every conventional plastic material and application, there is a bioplastic alternative available that offers the same or in some cases even better properties and functionalities.

Today, bioplastics are mainly being used in the following market segments:

- ❖ Packaging (including flexible and rigid packaging)
- ❖ Consumer goods & household appliances
- ❖ Automotive & transport
- ❖ Building & construction
- ❖ Textiles
- ❖ Agriculture & horticulture
- ❖ Electronics & electrics

Packaging remains the largest field of application for bioplastics with almost 60 percent of the total bioplastics market in 2017. The data also confirms a decisive increase in the uptake of bioplastics materials in many other sectors, including consumer goods and applications in the automotive and transport sector, and the construction and building sector, where technical performance polymers are being used.

Are bioplastics applied in mainly short-lived products?

Bioplastics have a multitude of durable but also short-lived applications. Durable, bio-based commodity plastics such as bio-based PE or bio-based PET are used for short-life applications such as packaging as well as for long-lasting applications such as car parts, toys, or consumer electronics that can be easily recycled in existing streams. These so called 'drop-in solutions' represent the largest sector of global bioplastics production.

Innovative bio-based and biodegradable materials such as PLA, PHA or starch blends are suitable for long-lasting products but are mainly used in short-lived applications such as packaging. They offer solutions with completely new functionalities such as compostability and in some cases optimised barrier properties for a prolonged shelf life and thus preventing food waste.

What are bioplastics made of?

Today, bioplastics are mostly made

of carbohydrate-rich plants such as corn, sugar cane or sugar beet – so-called food crops or first generation feedstock. First generation feedstock is currently the most efficient for the production of bioplastics, as it requires the least amount of land to grow and produces the highest yields.

The bioplastics industry is also researching the use of non-food crops (second and third generation feedstock), such as cellulose, with a view to its further use for the production of bioplastics materials. Innovative technologies are focussing on non-edible by-products of the production of food crops, which generates large amounts of cellulosic by-products such as straw, corn stover or bagasse that can be used to produce biopolymers.

What types of bioplastics do exist and what properties do they have?

Bioplastics are a diverse family of materials with differing properties. There are three main groups:

- ❖ Bio-based (or partially bio-based), durable plastics such as bio-based polyethylene (PE), polyethylene terephthalate (PET) (so-called drop-in solutions), bio-based technical performance polymers, such as numerous polyamides (PA), or (partly) bio-based polyurethanes (PUR);
- ❖ Bio-based and biodegradable, compostable plastics, such as polylactic acid (PLA), polyhydroxyalkanoates (PHA), polybutylene succinate (PBS), and starch blends;
- ❖ Plastics that are based on fossil resources and are biodegradable, such as PBAT and PCL, but that may well be produced at least partly bio-based in the future.

Bio-based, durable plastics, such as bio-based PE or bio-based PET, possess properties that are identical to their conventional versions. These bioplastics are technically equivalent

Bio-based plastics are made from a wide range of renewable **BIO-BASED feedstocks.**



to their fossil counterparts; yet, they can help to reduce a product's carbon footprint. Moreover, they can be mechanically recycled in the according existing recycling streams.

Innovative materials such as PLA, PHA, or starch-based materials offer solutions with completely new functionalities such as biodegradability and compostability and in some cases optimised barrier properties.

Along with the growth in variety of bioplastic materials properties such as flexibility, durability, printability, transparency, barrier, heat resistance, gloss, and many more have been significantly enhanced.

Why does the bioplastics industry use agricultural resources?

The emerging shift from crude oil towards renewable resources is driven primarily by the sustainable development efforts of the plastics industry. Finite oil resources and climate change constitute two broadly acknowledged challenges for society in the coming decades. Reducing the dependency on oil and mitigating the effects of climate change are therefore two important drivers for the use of renewable resources for the production of plastics. Bio-based plastics have the unique advantage over conventional plastics to reduce the dependency on limited fossil resources and to

reduce green-house gas emissions.

How much agricultural area is used for bioplastics?

Today, bioplastics are mostly made from carbohydrate-rich plants, such as corn or sugar cane, so called agro-based feedstock or 1st generation feedstock. Currently, 1st generation feedstock is the most efficient feedstock for the production of bioplastics as it requires the least amount of land to grow on and produces the highest yields.

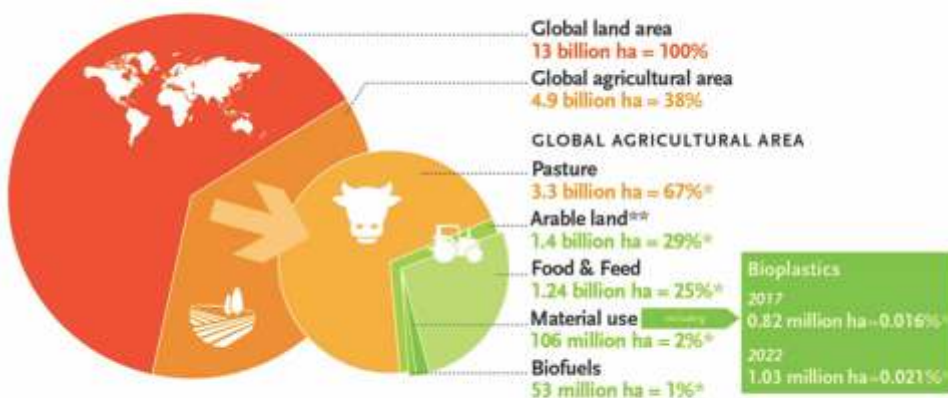
The feedstock currently used for the production of bioplastics relies on only about 0.02 percent of the global agricultural area – compared to 97 percent of the area, which is used for the production of food and feed. Despite the predicted

continued growth in the bioplastics market at the current stage of technological development, the share of global agricultural area used to grow feedstock for the production of bioplastics will remain around 0.02 percent in 2022. This clearly demonstrates that there is no competition between food/feed and industrial production.

Of the 13.4 billion hectares of global land surface, around 38 percent (5 billion hectares) is currently used for agriculture. This includes pastures (67 percent, approx. 3.3 billion hectares) and arable land (29 percent, approx. 1.4 billion hectares). The arable land is further divided into areas predominantly used for growing food crops and feed (25 percent, approx. 1.24 billion hectares), as well as crops for materials (2 percent, approx. 106 million hectares, including the 820,000 hectares used for bioplastics, 0.016%)¹, and crops for biofuels (1 percent, approx. 53 million hectares).

Moreover, advanced integrated production processes, for example in biorefineries, are already able to produce several different kinds of products out of one specific feedstock – including products for food, feed, and products, such as bioplastics.

Land use estimation for bioplastics 2017 and 2022



Source: European Bioplastics (2017), FAO Stats (2014), nova-Institute (2017), and Institute for Bioplastics and Biocomposites (2016). More information: www.european-bioplastics.org

* In relation to global agricultural area
** including arable, 1% fallow land



Image © iStock.com/fimsa

Is the use of non-food feedstock feasible?

Yes, to some extent. Today, bioplastics are predominantly produced from agro-based feedstock (i.e. plants that are rich in carbohydrates). At the same time, the bioplastics industry is investing in the research and development to diversify the availability of biogenic feedstock for the production of bio-based plastics. The industry particularly aims to further develop fermentation technologies that enable the utilisation of ligno-cellulosic feedstock sources, such as non-food crops or waste from food crops, in the medium and long term. The production of ligno-cellulosic sugars and ethanol in particular are regarded as a promising technological approach.

Are GMO crops used for bioplastics?

The use of genetically modified (GM) crops is not a technical requirement for the production of any bioplastic materials that are commercially available today. If GM crops are used, the reasons usually lie in the regional feedstock supply situation or are based on economic decisions.

Most bioplastics producers do not use GMO feedstock for the production of their bio-based plastic materials or offer GMO-free options. Yet, even if GM crops are used for the production of bioplastics, the multiple-stage

processing and high heat used to create the polymer removes all traces of genetic material. This means that the final bioplastic product contains no genetic traces. The resulting bioplastic product is therefore well suited to use in

food packaging as it contains no genetically modified material and cannot interact with the contents.

Are bioplastics edible?

Bioplastics are used in packaging, catering products, automotive parts, electronics, consumer goods, textiles, and many other applications where conventional plastics are used, too. Neither conventional plastic nor bioplastic should be ingested. Bioplastics used in food and beverage packaging are approved for food contact, but are not suitable for human consumption.

Is Bisphenol A used in bioplastics?

Many plastic products do not use any plasticisers but a range of acceptable plasticisers is available if necessary. The wide range of bioplastics is based on thousands of different formulas. This means specific information regarding a certain material or product can only be obtained from the individual manufacturer, converter or brand owner using the material.

Can bioplastics be integrated into established recycling and re-covery schemes?

Bioplastics are a diverse family of materials. Depending on the material and the application, recycling in existing waste streams is certainly an option. Drop-in solutions such as bio-based PE or bio-based PET can easily be recycled in existing recycling

streams together with their conventional counterparts.

Innovative materials such as PLA can also be mechanically recycled. Once sufficient volumes are on the market, the establishment of a separate recycling stream will become feasible. Biodegradable plastic products that have been certified compostable according to EN 13432 are suitable for industrial composting. All bioplastic materials offer (renewable) energy recovery as they contain a high energy value.

Can bioplastics be mechanically recycled?

If a separate recycling stream for a certain plastic type exists, the bioplastic material can simply be recycled together with their conventional counterpart – e.g. bio-based PE in the PE-stream or bio-based PET in the PET stream – as they are chemically and physically identical in their properties.

The post consumer recycling of bioplastics materials for which no separate stream yet exists, will be feasible, as soon as the commercial volumes and sales increase sufficiently to cover the investments required to install separate recycling streams. It is expected, that new separate recycling streams for PLA for example will be feasible and introduced in the short to medium term.

What is biodegradation?

This is process in which materials are metabolised to CO₂, water and biomass with the help of microorganisms. It depends on location, temperature, humidity etc. and the material itself. Thus the process and the results can vary considerably. In order to make organic recycling of biodegradable packaging more effective, a mandatory separate collection of biodegradable waste and legal access for certified compostable products to enter the respective recycling systems would be needed.

Compostability is a characteristic of a product, packaging or associated component that allows it to biodegrade under specific conditions (e.g. a certain temperature, timeframe, etc). These plants provide controlled conditions, i.e. controlled temperatures, humidity, aeration, etc. for a quick and safe composting process. Standards require that the compostable plastics to disintegrate after 12 weeks and completely biodegrade after six months. That means that 90 percent or more of the plastic material will have been converted to CO₂. The remaining share is converted into water and biomass – i.e. valuable compost. Compost is used as a soil improver and can in part also replace mineral fertilisers.

Bioplastics are a large family of materials that can be either bio-based, biodegradable or both. The largest share (over 75%) of bioplastics currently on the market is bio-based, non-biodegradable (durable) materials. Biodegradability is an inherent property of certain polymers that can be preferable for specific applications (e.g. bio-waste bags). Biodegradable/compostable products should feature a clear recommendation regarding the suitable end-of-life option and correct disposal for this product.

Using biodegradable and compostable plastic products such as biowaste bags, fresh food packaging, or disposable tableware and cutlery increases the end-of-life options. In addition to recovering energy and mechanical recycling, industrial composting (organic recovery / organic recycling) becomes an available end-of-life option.

Compostability is a clear benefit when plastic items are mixed with biowaste. Under these conditions, mechanical recycling is not feasible, neither for plastics nor biowaste. The use of compostable plastics makes the mixed waste suitable for organic recycling (industrial composting and anaerobic digestion), enabling the shift from recovery to recycling (a treatment option which ranks higher on the European waste hierarchy). This way, biowaste is diverted from other recycling streams or from landfill and facilitating separate collection – resulting in the creation of more valuable compost.

Are biodegradable plastics a solution for the littering problem?

A product should always be designed with an efficient and appropriate recovery solution in mind. In the case of biodegradable plastic products, the preferable recovery solution is the separate collection together with the biowaste, organic recycling (e.g. composting in industrial composting plant or anaerobic digestion in AD plants), and hence the production of valuable compost or biogas. European Bioplastics does not support any statements that advertise bioplastics as a solution to the littering problems. Littering refers to careless discarding of waste and is not a legitimate means of disposal.

Biodegradable plastics are often regarded as a possible solution to this problem as they can be decomposed by microorganisms without producing harmful or noxious residue during decomposition. However, the

process of biodegradation is dependent on certain environmental conditions (i.e. temperature, presence of microorganisms, timeframe, etc.). Products suitable for industrial composting are fit for the conditions in a composting plant, but not necessary for those outside in nature.

Littering should never be promoted for any kind of material or waste. It is imperative for the consumer to continue to be conscious of the fact that no matter what type of packaging or waste, it must be subject to appropriate disposal and recovery processes.

Do bioplastics have a lower carbon footprint than fossil based plastics? How is this measured?

Bio-based plastics have the unique advantage over conventional plastics to reduce the dependency on limited fossil resources and to reduce greenhouse gas emissions. Plants sequester atmospheric carbon dioxide (CO₂) during their growth. Using these plants (renewable biomass) to produce bio-based plastics removes CO₂ from the atmosphere and keeps it stored throughout the entire product life. This carbon fixation (carbon sink) can be extended for even longer if the material is recycled. Substituting the annual global demand for fossil-based polyethylene (PE) with bio-based PE would save more than 42 million tonnes of CO₂. This equals the CO₂ emissions of 10 million flights around the world per year.

(Extracted from:
http://docs.european-bioplastics.org/publications/EUBP_FAQ_on_bioplastics.pdf)

EXTENSION OF DIETARY FIBER DEFINITION BY USFDA



By **Dr. Meeta M. Raheja**
Rettenmaier India Pvt. Ltd (JRS India)

It is a very well-known fact that dietary fiber is needed in our daily diet for good health. The two types of dietary fiber - soluble and insoluble fibers both are required for myriad health benefits, both having different functions in gut health, blood glucose control, cholesterol control etc. As per dietary guidelines/ recommendations, Insoluble fiber is required in a larger quantity as compared to the soluble fibers.

However, till now the dietary fiber definition was ambiguous, and insoluble fiber was not mentioned in International Guidelines like US FDA, CODEX, EU Regulations, FSANZ etc. The standards were established only for soluble fibers like fructooligosaccharides, inulin etc.

Before 2016, FDA regulations did not define the term “dietary fiber” for the Nutrition Facts and Supplement Facts labels. In the Federal Register of May 27, 2016 (81 FR 33742), US FDA published a final rule amending the Nutrition Facts and Supplement Facts Labels regulations, defining the dietary fiber as “non-digestible soluble and insoluble carbohydrates (with 3 or more monomeric units), and lignin that are intrinsic and intact in

plants; isolated or synthetic non-digestible carbohydrates (with 3 or more monomeric units) having physiological effects that are beneficial to human health” (§101.9(c)(6)(i) (21 CFR 101.9(c)(6)(i))). This rule also identified seven isolated or synthetic non-digestible carbohydrates that must be declared as dietary fiber on Nutrition and Supplement Facts labels when present in a food. These were cellulose, guar gum, locust bean gum, pectin, hydroxymethylpropyl cellulose, beta-glucan soluble fiber and psyllium husk.

Recently in June 2018, US FDA has issued a new guidance for the industry – The Declaration of Certain Isolated or Synthetic Non-Digestible Carbohydrates as Dietary Fiber on Nutrition and Supplement Facts Labels. This guidance is consistent with FDA’s good guidance practices (GGP) regulation (§10.115 (21 CFR 10.115)). The announcement of the guidance was published in the Federal Register on June 15, 2018.

This guidance was released based on review of citizen petitions that US FDA had received requesting to identify additional isolated or synthetic non-digestible carbohydrates in the listing of dietary fibers, and comments that FDA received on a draft guidance entitled “Scientific Evaluation of

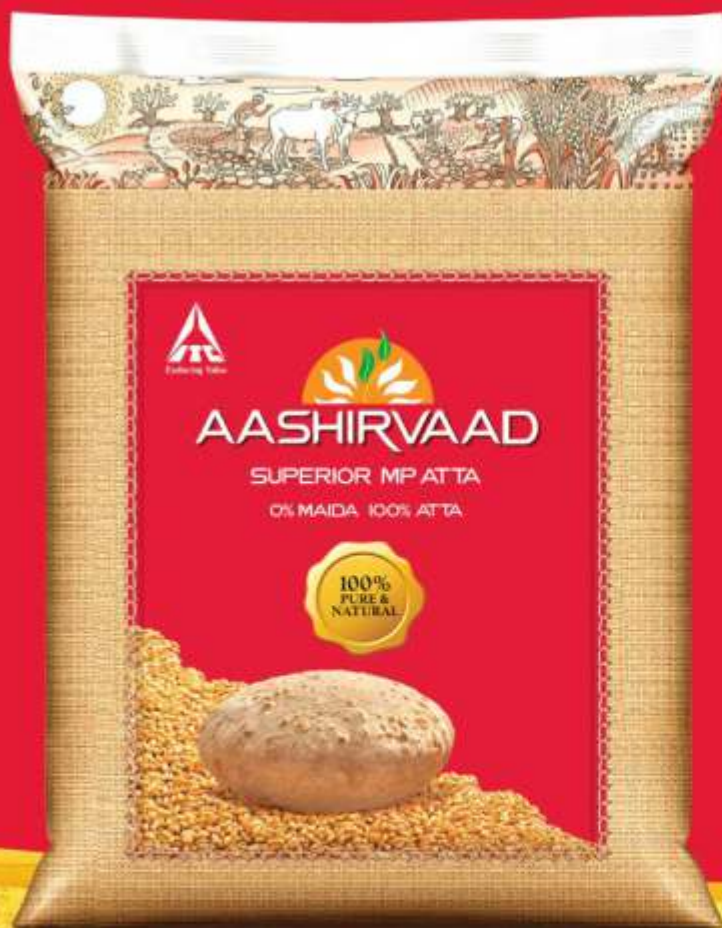
the Evidence on the Beneficial Physiological Effects of Isolated or Synthetic Non-Digestible Carbohydrates Submitted as a Citizen Petition (21 CFR 10.30)” and an accompanying document titled “Evaluation of the Beneficial Physiological Effects of Isolated or Synthetic Non-Digestible Carbohydrates,” in addition to FDA’s independent evaluation of the available scientific data. The FDAnow identifies eight specific, additional isolated or synthetic non-digestible carbohydrates to be added to FDA’s regulatory definition of “dietary fiber” in §101.9(c)(6)(i) through their regular rulemaking process. In the interim, the guidance also advises manufacturers to include these eight non-digestible carbohydrates present in a food, in the declared amount of “dietary fiber”.

The eight non-digestible carbohydrates that FDA intends to add are – Mixed plant cell wall fibers; arabinoxylan; alginate, inulin and inulin-type fructans; high amylose starch (resistant starch 2); galactooligosaccharide; polydextrose; and resistant maltodextrin/dextrin. The first category i.e. Mixed Plant Cell Wall Fibers encompasses a number of fiber ingredients, i.e., cellulose, hemicelluloses, and pectin, as well as lignin. Fiber ingredients obtained from plant cell



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walls, in whole or in part, often contain a mixture of cellulose, hemicellulose, and pectin.

The content and profile of these mixed plant cell wall fibers can vary depending on the processing methods that are used to isolate the fibers from a particular type of plant, which often makes it difficult to determine whether or not a particular fiber is intact and intrinsic, particularly when the processing methods used to extract the fiber or the composition of the ingredient are unknown.

The distinction is relevant for determining whether a plant cell wall fiber is included in the definition of “dietary fiber.” An “intrinsic and intact” fiber is defined as a “dietary fiber” and therefore must be included in the declaration of dietary fiber on the Nutrition and Supplement Facts labels (21 CFR 101.9(c)(6)(i)). For certain plant cell wall fibers that are not intrinsic and intact, FDA has determined whether the carbohydrate provides a physiological effect that is beneficial to human health and, if so, have included those particular carbohydrates as a “dietary fiber” in § 101.9(c)(6)(i).

Cellulose, pectin and β -glucan are found in plant cell walls and meet the definition of dietary fiber based on their physiological effects that are beneficial to human health (21 CFR 101.9(c)(6)(I); 21 CFR 101.81). Plant cell wall fibers also contain a category of non-digestible carbohydrates referred to as “hemicelluloses.” There are various types of hemicelluloses found in different plant-based foods and at different levels. β -Glucan is present in the plant cell walls of barley, oats, and rye and is considered to be a form of hemicellulose. The hemicellulose fibers may be considered “intrinsic and intact” in plants, or may be isolated after undergoing different types of

processing. For example, the dietary fiber β -glucan may be intrinsic and intact (e.g., whole oat flour), or may be an isolated fiber added to food as an ingredient (e.g., barley beta fiber). Similarly, the soluble fiber in psyllium husk, arabinoxylan, is another form of hemicellulose that is abundant in the walls of cereal grains and is an example of an isolated non-digestible carbohydrate.

FDA has proposed Mixed Plant Cell Wall Fibers as a category of isolated fibers because they are generally processed using methods that result in the plant cell being disrupted and/or various nutrients being removed from the plant, such that they are no longer intrinsic and intact, as indicated in a number of notifications submitted to FDA.

Examples of processing methods that have been provided to FDA by manufacturers in GRAS notifications that have been used for isolating various plant cell wall fiber ingredients include enzymatic digestion, aqueous extractions, and hydrolyses, extractions and precipitations using various chemicals (e.g., sodium hydroxide, alkaline peroxide, sulfuric acid, and alcohol).

Plant cell wall fibers are composed of fibers like cellulose, pectin, β -glucan, and/or arabinoxylan, and based on the reviews, FDA considers that each of these fibers provides a beneficial physiological effect. The benefits of these individual fibers can be extrapolated to the same fibers when found in combination as part of a mixed plant cell wall. The non-digestible carbohydrates from the plant cell wall fiber ingredients extracted from food are

generally mixed and can contain variable amounts of vitamins, minerals, and macronutrients based on the methods that may be used for isolating and extracting the fiber. Examples of mixed plant cell wall fibers that FDA intends to consider enforcement discretion for as a dietary fiber are those obtained from whole or parts of fruits, vegetables, grains, legumes, pulses, nuts, and other plants that undergo processing methods.

Some examples of mixed plant cell wall fibers identified by FDA are apple fibers, oat fibers (eg. Oat hull fibers), wheat fibers, bamboo fibers, barley fibers, carrot fibers, citrus fibers, cocoa fibers, corn fibers (eg. Corn hull fiber), cotton seed fibers, pea fibers (eg. pea hull fiber, pea seed coat fiber, inner cotyledon pea fiber) rice bran fibers, soy fibers (e.g., soy hull fiber, soy polysaccharide, soy cotyledon fiber), sugarbeet fibers and sugarcane fibers.

Now that US FDA has extended the definition of dietary fibers and included such fibers, it should only be a matter of time before other Regulatory Bodies tread the same path, and provides the much awaited clarity to the industry.

<https://www.federalregister.gov/documents/2018/06/15/2018-12867/the-declaration-of-certain-isolated-or-synthetic-non-digestible-carbohydrates-as-dietary-fiber-on>

<https://www.fda.gov/downloads/Food/Labeling/Nutrition/UCM610139.pdf>

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REPORT ON PFNDAI WORKSHOP ON APPROVAL PROCESS FOR HEALTH CLAIMS



By
Ms. Swechha Soni,
Nutritionist, PFNDAI

PFNDAI had organized a workshop on Approval process for Health Claims, which was held at Hotel Orchid, Mumbai; on 28th June, 2018. The workshop was attended by delegates from the field of Regulatory firms, Food Industries, Nutrition and Dietetics. The main focus of the workshop was on Capacity Building in Food Regulatory Process. The workshop was honored by the presence of eminent speakers who spoke on various aspects relating to Claims and Advertisements and its Approval Process across the globe.

The workshop was inaugurated by Dr. B. Sesikeran (Chairman; Scientific Advisory Committee, PFNDAI). He spoke on Food based Clinical trials, where he focused on the mandatory steps in designing clinical studies and their outcomes. He also gave an overview on Systematic review.

More highlights given by the speakers on the claims are as follows:

Dr. Jasvir Singh (Regulatory, Scientific and Govt. Affairs leader- DuPont Nutrition & Health; Asia) briefed the audience about the Global Perspective on Claims and its Types. He talked about the Definition and the Claims Structure in different countries; where he mentioned that the primary purpose of a claim is to translate science into a language which consumers can understand. He concluded by raising a point about what should be the governance mechanisms which can strike a balance between needs to consumers as well as industry, so that scientifically valid claims reach consumers in reasonable time

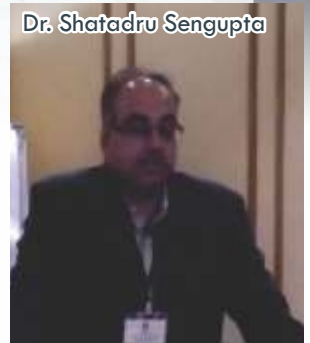


Dr. Jasvir Singh

frames.

Dr. Shatadru Sengupta (Senior Director Legal - Hardcastle Restaurants Pvt. Ltd.) summarized the Claims Approval Process Analysis by explaining about when the Approval process for Claims does apply. He also gave an understanding about which claims need approval. He mentioned seven points which are required for the procedure for approval process of Claims. He also put focus on the cons of rejection of a claim, where there is no right of appeal against a rejection. He concluded by recommending "to plan the claim according to regulations".

Dr. Shatadru Sengupta



Dr. Sesikeran Chairing Panel





Mr. Kiran Desai

Mr. Kiran Desai (Regulatory Affairs Manager- Mead Johnson Nutrition; Reckitt Benckiser) gave an overview on Claims and Approval process in ASEAN (Association of South East Asian nations) Countries. He highlighted the indicators of the ASEAN Countries along with the Structure of Claims. He gave a systematic preview of the type of approvals, Claim approval process and Food registration process. He also gave a gist of the allowances, Restrictions and Prohibitions with respect to Claims in ASEAN Countries.



Ms. Rini Sanyal

Ms. Rini Sanyal (Regulatory Affairs- Herbalife) briefed about Claims on health Supplements and the Approval Process. She put a focus on the types of Claims allowed under Health supplements in reference to Food Safety and Standards Regulation, 2016. She mentioned about the conditions of the Nutrient Content Claims, General Health Claims and its components. She also talked about the Claims under Codex and other regulations namely- USA and EFSA. She concluded by adding that the Indian Claim regulation is now evolving.



Ms. Veena Sharma

Ms. Veena Sharma (Regulatory Affairs- GSK) talked on Claims and Advertisements- Today and Tomorrow. She highlighted the key features of the Claim and Advertisement Draft Regulation, 2018. She highlighted the key features of the Claim and Advertisement Draft Regulation, 2018. She pointed the communication gap in case of Health Claims, due to use of technical words, not understood by the consumers. She also gave an insight of the degree of assessment of Health claims; about how it goes on. She summarized by suggesting to work in a matrix form, by providing scientific relevance for the claims, developing guidance and being transparent.



Dr. Vaibhav Kulkarni

Dr. Vaibhav Kulkarni (Director Regulatory Affairs- Abbott Healthcare Pvt. Ltd.) spoke on Key Differences in Global Regulations of Food Categories and Claims. He gave an insight about the Food Regulatory Categories, Different Claims and its approval process in USA, China and EU countries. He also spoke about the claim regulations in Brazil, Russia and India.

Ms. Meenu Yadav (Scientific & Regulatory Affairs- Mondelez) conveyed to the audience the interrelationship between Advertising and Claims. She highlighted the amendment in the definition of Claims and marked some important definitions regarding Advertisement as in the FSSAI draft regulation. She notified about the general principles that is need to be followed to set up a Claim and advertisement for same. She also defined Nutrition Claims, Non-addition Claims, Health Claims and Prohibited Claims. She systematically explained the Claims Approval Process.



Ms. Meenu Yadav



Dr. J. L. Lewis

Dr. Lewis (Food Regulatory Consultant) gave a systematic review of the Approval Process for Health Claims. He covered the Scope of Health claims, mentioning the two categories of Claims; one being Functional claims (which are non-disease claims) and the other being Disease Risk reduction claims.

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He further added the significance of Scientific Substantiation of the Claims which are subject to common approval process. He explained the Approval Process for Generic Claims which are related to nutrient or other substance or food category or component and are supported by 'generally accepted scientific evidence' and Specific/ Product led/ New/ Innovative which are the claims that are not currently regarded as substantiated under the generally accepted scientific evidence.

The workshop was summarized to discuss on the next steps the industries could have so that the Approval process of Claims gets more evolved and fuss free by the Panel consisting- Dr.B. Sesikeran, Dr. Jasvir Singh, Ms. RiniSanyal, Dr. Shatadru Sengupta, Mr. Kiran Desai, Dr. Vaibhav Kulkarni. The panel had a one to one interaction with the audience and shared their ideas about how to systematically go about the procedures for the approval of claims. It was suggested that the ambiguity with regulations should

be cleared and looked in more practically. Also, before making a Claim, one must go back in the history to review and understand the process and methodology and do a thorough study.

The speakers at the end were felicitated with a token of appreciation from PFNDAI and were extended a vote of thanks along with all the other delegates for making the workshop a successful and productive event.

Audience



Audience



Anuja Thanking
Dr. Sesikeran



REGULATORY ROUND UP



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

Dear Readers

FSSAI has widened its role and is looking beyond making regulations. The extra regulatory initiatives include promoting nutritious food, “Eat Right”, collaboration with educational institutes for promoting safe and nutritious food.

The “[Eat Right](#)” campaign is based on “eat healthy” and “eat safe” concepts to address the prevalent non communicable diseases. The campaign is popularized by a video presentation by a Bollywood star under the catchy caption “[Aaj se Thoda Kham](#)”. The presenter urges the consumers to reduce the intake of sugar, salt and fat by small amounts instead of abstinence

which invariably fails. The video, mercifully, does not blame the processed food industry, the famous whipping boy of NGOs. However, there is only a passing mention on physical activity. I would have liked the hero emphasizing much more on the physical activity which is equally important in fighting the non-communicable diseases.

FSSAI had a meeting with Vice chancellors of educational institutes, officials from other relevant ministries and Industry bodies to engage, excite and enable ([Triple E strategy](#)) the academic institutes through quiz contests, etc for ensuring holistic approach to food safety and nutrition.

FSSAI is publishing science based facts setting right myths and blatant lies like plastic in wheat flour, [plastic eggs](#), etc. As food

professionals, we must this spread FSSAI messages far and wide.

I am discovering certain truths regarding comments and suggestions sought in case of draft regulations. When one reads them at the draft stage, they all look fine as we do not apply to real situations. The serious look at the regulation happens when it is finally notified and when one applies to a live example. All the lacunas come to light when it is trifle late and difficult to make the changes. The problem could be addressed to some extent when more stakeholders go through the draft and suggest amendments.

This Regulatory Round Up is 20th in the series. I am yet to receive any feedback. Please send in your comments and suggestions for improvement.



[Draft amendments](#) are proposed in Health Supplement and Nutraceutical regulation to include new additives in different categories. Areca nut is proposed to be deleted from the permitted list of botanicals.

[Draft regulation on Contaminants, Toxins and Residues is published.](#) The proposed regulation introduces standards for metals in food additives, limits for microbial toxins in milk powder which were hitherto not mentioned.

[Final notification amending the definition of natural Mineral waters.](#) Underground water is also included. Total dissolved solids requirement is revised.

[Final notification permitting spices and condiments in ice lollies](#)

[Final notification setting limits for antibiotics and veterinary drug residues in meat, milk and their products.](#) The food business operators in the end of the food chain have no control over the residues. They have no rapid and cost-effective way to analyse these residues at the receiving stage except in case of milk. There is definitely no way to remove the residues from the food except to discard them. The control should be exercised at the farm level.

[Through an order Lecithin has been permitted in Follow Up Formula up to 0.5 g per 100 g of the product.](#) This is likely to be regularized

through Gazette notification.

[FSSAI permits the use of stickers to depict Fortification Logo on the packs till 31.12.2018.](#)

[“Heme Iron”, from blood, is not permitted as a iron source in food articles under the Fortification Regulation.](#) The previous order banning “Heme” iron in food articles, in general, appears to have been revoked.

[All business operators having establishment is seaports and airports to have FSSAI license](#)

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RESEARCH IN HEALTH & NUTRITION

Flavonoids may slow lung function decline due to aging

May 21, 2018 Science Daily

Previous research has shown that the plant-produced chemicals known as flavonoids have beneficial antioxidant and anti-inflammatory properties. Anthocyanins, the type of flavonoid investigated in the current study, have been detected in lung tissue shortly after being ingested, and in animals models of chronic obstructive pulmonary disease (COPD). The plant chemicals appear to reduce mucus and inflammatory secretions.

However, "the epidemiological evidence on the association between flavonoids and lung function is very scant," said lead study author Vanessa Garcia-Larsen, PhD, assistant professor in the Human Nutrition Division of the Department of International Health at the Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland. "So we wanted to investigate whether dietary intake and anthocyanins are associated with lung function decline in middle-age adults."

The researchers analyzed data from 463 adults (average age: 44) who participated in the second and third European Community Respiratory

Health Surveys from 2002 to 2012. Those included in the current study completed a dietary questionnaire and underwent spirometry at enrollment and upon follow-up. A common lung function test, spirometry measures the amount of air that a person can forcefully exhale in one second (FEV1), the total amount of air a person can exhale after taking a deep breath (FVC) and the ratio of the two, FEV1/FVC. Participants were then grouped into quartiles based on the amount of anthocyanins they consumed.

The study found individuals in the highest, compared to the lowest, quartile of anthocyanin intake had: a slower rate of annual decline in FEV1 than those in the lowest quartile: -9.8 milliliters per year (mL/yr) vs. -18.9 mL/yr.

a slower rate of annual decline in FVC than those in the lowest quartile: -9.8 mL/yr vs. -22.2 mL/yr.

a slower rate of annual decline in FEV1/FVC: -0.02/yr.

The researchers also analyzed the association between anthocyanin consumption and lung function in smokers, those who had never smoked and those who quit. The association between high consumption of the flavonoids and reduced lung function decline

appeared to be stronger among both never smokers and those who had quit than in the general study population. Among smokers, the study did not find an association between anthocyanin intake and lung function.

The study adjusted for a wide range of factors, including characteristics of participants' diets, gender, height, body mass index and socioeconomic status. Another strength of the study was its inclusion of participants from two countries, Norway and England. The study was limited by its relatively small size and the fact that diets were self-reported.

"Our study suggests that the general population could benefit from consuming more fruits rich in these flavonoids like berries, particularly those who have given up smoking or have never smoked, Dr. Larsen said. "For smokers, quitting remains the best thing they can do to protect their health." The first European Community Respiratory Health Survey began in 1990 in response to a worldwide increase in asthma prevalence. The scope of the surveys has expanded to include information about the associations between behavioral and environmental factors that might also affect the development of COPD.

Keep saying yes to fish twice a week for heart health

May 17, 2018 Science Daily

A new scientific advisory reaffirms the American Heart Association's recommendation to eat fish- especially those rich in Omega-3 fatty acids twice a week to help reduce the risk of heart failure, coronary heart disease, cardiac arrest and the most common type of stroke (ischemic). The advisory is published in the American Heart Association's journal *Circulation*.

"Since the last advisory on eating fish was issued by the Association in 2002, scientific studies have further established the beneficial effects of eating seafood rich in Omega-3 fatty acids, especially when it replaces less healthy foods such as meats that are high in artery-clogging saturated fat," said Eric B. Rimm, Sc.D., chair of the American Heart Association writing group and professor of epidemiology and nutrition at the Harvard T.H. Chan School of Public Health in Boston.

The Association recommends eating two 3.5-ounce servings of non-fried fish, or about $\frac{3}{4}$ cup of flaked fish every week. Emphasis should be placed on eating oily fish like salmon, mackerel, herring, lake trout, sardines or albacore tuna, which are all high in omega-3 fatty acids.

The advisory was written by a panel of nutrition experts, who also reviewed studies about mercury in fish. Mercury is found in most seafood but is prevalent in large fish such as shark, swordfish, tilefish, king mackerel, bigeye tuna, marlin and orange roughy. The writing group concluded that while mercury

contamination may be associated with serious neurological problems in newborns, existing scientific research finds that mercury contamination does not have adverse effects on heart disease risk in adults, and the benefits of eating fish substantially outweigh any risks associated with mercury contamination, especially if a variety of seafood is consumed.

The importance of environmentally sustainable fish farming techniques and other topics are also briefly discussed in the advisory. A previously published American Heart Association advisory on Omega-3 fish oil supplements noted that the supplements are not recommended for the general public to prevent clinical cardiovascular disease because of a lack of scientific evidence regarding any effect on cardiovascular risk.

New link between gut microbiome and artery hardening discovered

May 10, 2018 Science Daily

The level of diversity of the 'good bacteria' in our digestive systems has been found to be linked to a feature of cardiovascular disease -- hardening of the arteries -- in new research by experts at the

University of Nottingham and King's College London.

The gut microbiome is under increasing scrutiny in medical research as it is known to affect many different aspects of our health, including our metabolism and auto-immune system. A lack of diversity or range of healthy bacteria in the gut has previously been linked to various health problems, including diabetes, obesity and inflammatory stomach and bowel diseases.

Now for the first time, researchers have found a link between gut bacteria and arterial stiffening which suggests that targeting the microbiome through diet, medication and probiotics may be a way to reduce the risk of cardiovascular disease. The British Heart Foundation and MRC-funded research has been published in the *European Heart Journal*.

The gut microbiome has been implicated in a variety of potential disease mechanisms including inflammation which can predispose people to heart disease. The hardening of the arteries that happens at different rates in different people as we age, is known to be a factor in cardiovascular risk. The researchers examined medical data from a group of 617 middle-aged female twins from the TwinsUK registry -- a national registry of adult twins recruited as volunteers for data-based research.



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Measurements of arterial stiffening using a gold-standard measure called carotid-femoral pulse-wave velocity (PWV) were analysed alongside data on the composition of the gut microbiomes of the women.

The results of the analysis revealed that there was a significant correlation in all the women between the diversity of the microbes in the gut and the health of the arteries. After adjusting for metabolic variations and blood pressure, the measure of arterial stiffness was higher in women with lower diversity of healthy bacteria in the gut. The research also identified specific microbes which were linked to a lower risk of arterial stiffening. These microbes have also previously been associated with a lower risk of obesity.

Dr Ana Valdes, from the University of Nottingham's School of Medicine and NIHR Nottingham Biomedical Research Centre, said: "We know that a substantial proportion of serious cardiovascular events like heart attacks are not explained by traditional risk factors such as obesity and smoking, particularly in younger people and in women and that arterial stiffness is related to risk in those groups. So our results reveal the first observation in humans linking the gut microbes and their products to lower arterial stiffness. It is possible that the gut bacteria can be used to detect risk of heart disease and may be altered by diet or drugs to reduce the risk."

Dr Cristina Menni, from the Department of Twin Research and Genetic Epidemiology at King's College London, said: "There is considerable interest in finding ways to increase the diversity of gut microbes for other conditions such as obesity and diabetes. Our findings now suggest that finding dietary interventions to improve the healthy bacteria in the gut could

also be used to reduce the risk of heart disease."

The research concludes that cardiovascular risk that is not explained by the usual risk factors could in the future be enhanced by analysing the health of the gut microbiome. This could be particularly useful in stratifying cardiovascular risk in younger people and in women. The gut microbiome could also be the target for nutrition-based health interventions -- for example, a high-fibre diet is known to improve the quantity and diversity of useful microbes in the gut. In fact, the composition of the gut microbiome may contribute to the mechanism whereby dietary fibre intake influences cardiovascular risk, but more research into this mechanism is needed.

The research was funded by the British Heart Foundation and Medical Research Council and is part of a programme grant, AIM-HY, to identify markers that may help tailor treatments to individuals.

Symptoms of osteoarthritis may be lessened with simple changes to the diet

May 8, 2018 Science Daily

One gram of fish oil a day could help reduce the pain of patients with osteoarthritis, a new study in Rheumatology reports.

In the largest, most up to date study of its kind, researchers from the University of Surrey examined the link between diet and the effective self-management of osteoarthritis. Analysing 68 previous studies in the

field, researchers found that a low-dose supplement of fish oil (one and a half standard capsules) could result in pain reduction for patients with osteoarthritis and help improve their cardiovascular health. Essential fatty acids in fish oil reduce inflammation in joints, helping to alleviate pain.

Researchers also found that a reduction of weight for overweight and obese patients and the introduction of exercise tailored to mobility could also help ease the symptoms of osteoarthritis. Not only does obesity increase strain on joints, it can cause low-grade, systemic inflammation in the body aggravating the condition further.

A calorie restricted diet, combined with strengthening, flexibility and aerobic exercises, was identified as an effective approach in reducing pain in overweight patients. There is no evidence that a calorie restricted diet does anything beneficial for lean patients with the condition. Adopting a healthier lifestyle will also help reduce cholesterol levels in the blood -- high blood cholesterol is known to be associated with osteoarthritis.

An increase in foods rich in vitamin K such as kale, spinach and parsley was also found to deliver benefits to patients with osteoarthritis. Vitamin K is needed for vitamin-K-dependent (VKD) proteins, which are found in bone and cartilage. An inadequate intake of the vitamin adversely affects the working of the protein, affecting bone growth and repair and increasing the risk of osteoarthritis.

Margaret Rayman, Professor of Nutritional Medicine at the University of Surrey, said: "The importance of a good diet and regular exercise should never be underestimated. Not only does it

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keep us fit and healthy, but as we have learned from this study, it can also lessen painful symptoms of osteoarthritis. "We are what we eat and it is important that we have the right amount of nutrients from our food to ensure that our body systems work as they should."

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Eggs not linked to cardiovascular risk, despite conflicting advice *No extra risk for people with pre-diabetes or type 2 diabetes*

May 7, 2018 Science Daily

University of Sydney researchers aim to help clear up conflicting dietary advice around egg consumption, as a new study finds

eating up to 12 eggs per week for a year did not increase cardiovascular risk factors in people with pre-diabetes and type 2 diabetes.

Published in the American Journal of Clinical Nutrition today, the research extends on a previous study that found similar results over a period of three months. Led by Dr Nick Fuller from the University's Boden Institute of Obesity, Nutrition, Exercise and Eating Disorders at the Charles Perkins Centre, the research was conducted with the University of Sydney's Sydney Medical School and the Royal Prince Alfred Hospital. In the initial trial, participants aimed to maintain their weight while embarking on a high-egg (12 eggs per week) or low-egg (less than two eggs per week) diet, with no difference in cardiovascular risk markers identified at the end of three months. The same participants then embarked on a weight loss diet for an additional three months, while continuing their high or low egg consumption. For a further six months -- up to 12 months in total -- participants were followed up by researchers and continued their high or low egg intake.

At all stages, both groups showed no

adverse changes in cardiovascular risk markers and achieved equivalent weight loss -- regardless of their level of egg consumption, Dr Fuller explained. "Despite differing advice around safe levels of egg consumption for people with pre-diabetes and type 2 diabetes, our research indicates people do not need to hold back from eating eggs if this is part of a healthy diet," Dr Fuller said. "A healthy diet as prescribed in this study emphasised replacing saturated fats (such as butter) with monounsaturated and polyunsaturated fats (such as avocado and olive oil)," he added.

The extended study tracked a broad range of cardiovascular risk factors including cholesterol, blood sugar and blood pressure, with no significant difference in results between the high egg and low egg groups. "While eggs themselves are high in dietary cholesterol -- and people with type 2 diabetes tend to have higher levels of the 'bad' low density lipoprotein (LDL) cholesterol -- this study supports existing research that shows consumption of eggs has little effect on the levels of cholesterol in the blood of the people eating them," Dr Fuller explained.

Dr Fuller said the findings of the study were important due to the potential health benefits of eggs for people with pre-diabetes and type 2 diabetes, as well as the general population. "Eggs are a source of protein and micronutrients that could support a range of health and dietary factors including helping to regulate the intake of fat and carbohydrate, eye and heart health, healthy blood vessels and healthy pregnancies." The different egg diets also appeared to have no impact on weight, Dr Fuller said.

"Interestingly, people on both the high egg and low egg diets lost an equivalent amount of weight -- and continued to lose weight after the three month intended weight loss phase had ended," he said.

Ali Mobasheri, Professor of Musculoskeletal Physiology at the University of Surrey, said: "A combination of good diet and regular exercise are necessary to keep joints healthy; you can't have healthy joints with just one, you need both.

"Lifestyle should also be considered when attempting to reduce the pain of osteoarthritis. Patients can't expect miracles with dietary interventions if they are overweight and drink or smoke heavily. Evidence shows that smoking and heavy drinking negatively affects body energy metabolism and inflammatory markers in the liver which may promote inflammation and disease in the body."

Osteoarthritis is the most prevalent form of arthritis in the world with 18 per cent of women and 9.6 per cent of men aged 60 years and over being diagnosed with this painful condition. True numbers are likely to be higher than that as the global burden of osteoarthritis has been much underestimated. By 2050 an estimated 130 million people will suffer with osteoarthritis placing a substantial burden on health services. Currently there is no effective treatment for this painful ailment, with only painkillers available to treat symptoms and no known cure.



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Sensory-based food education encourages children to eat their fruit and vegetables, study finds

31 May 2018 Nutrition Insight

Sensory-based food education given to 3-5 year-old children increases their willingness to choose vegetables, berries and fruit, according to a study from the University of Eastern Finland. The study, published in *Public Health Nutrition*, points to a role for sensory-based food education in promoting healthy dietary habits in early childhood education and care (ECEC).

The researchers used the sensory-based food education method Sapere, which makes use of children's natural way of relying on all of the five senses when learning new things. In the Sapere method, children are encouraged to share their sensory experiences. Sensory-based food education is well suited to the everyday life of kindergartens, where children eat several meals every day and participate in pedagogically oriented group activities.

"There are several different ways to do this. However, it always starts from sensory-based learning, child-orientation and child engagement. Doing and experiencing things together is also an important aspect," says Nutritionist Kaisa Kähkönen from the University of Eastern Finland, one of the researchers involved in the study. Kindergartens can employ different methods when delivering food

education, such as involving children in baking and cooking or growing their own vegetables in the kindergarten backyard. Food-related themes can also be included in books and games, the researchers note.

The researchers compared children in different kindergarten groups. Some were offered sensory-based food education, while others weren't. Children were provided a snack buffet containing different vegetables, berries and fruit to choose from, and the researchers took photos of their plates to analyze their willingness to choose and eat these food items. The findings show that sensory-based food education given in kindergarten increased children's willingness to choose vegetables, berries and fruit, especially among children whose mothers have a lower educational background.

"Families with low socio-economic status have been found to consume less vegetables, berries and fruit, and are therefore less likely to provide them to children at home, which reduces their children's familiarity with these foods. It is not clear why children from lower socio-economic families chose vegetables, berries and fruit more willingly [in the study]," Kähkönen tells NutritionInsight. "Earlier findings indicate that high-quality ECEC might be more beneficial for children from families with a lower socio-economic status compared with their peers with a higher socio-economic status. It is possible that children of mothers with lower education levels benefit more from sensory-based food education than children of mothers with a higher education. More highly educated mothers are probably more aware of healthy eating for children and offer a wider variety of vegetables and fruit at home."

"Another interesting finding is that

the Sapere food education method also seems to improve the eating atmosphere in kindergarten groups. This encouraged children who, according to their parents, were picky eaters, to choose a more diverse selection of vegetables, berries and fruit on their plate," Kähkönen explains. Positive and personal food-related experiences gained in the kindergarten can help modify dietary preferences in a direction that is beneficial for health. Dietary preferences learned in early childhood often stick with a person all the way to adolescence and adulthood.

When asked about the role food and beverage companies could play in encouraging the consumption of fruit and vegetables, Kähkönen tells NutritionInsight that a good strategy would be to develop products and packages that ease the use of vegetables, berries and fruit at ECEC and homes and can also be consumed as snacks on-the-go. "And also, industry could encourage healthy eating by making packaged products containing vegetables, berries and fruit more appealing to children. The sense of sight is the very important when we consumers make decisions of buying and eating – so the appearance of a package and product plays a big role," she says.
By Lucy Gunn

Oily fish intake of mother benefits kid's weight maintenance, study finds

31 May 2018

Mothers who eat omega-rich fats from oily fish may help their children maintain a healthy weight for the entirety of their lives, a study has found.

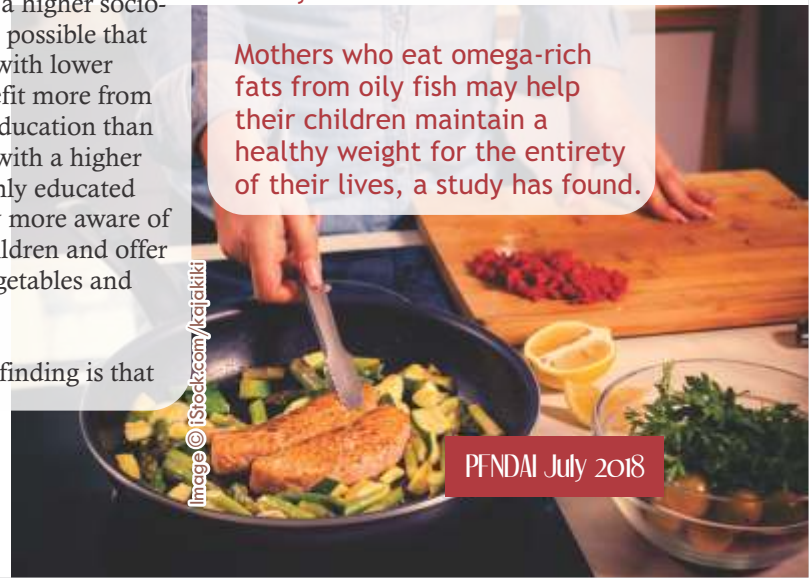


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PFNDAL July 2018

The research, published in *Microbiome*, found that the maternal fatty acid status persistently restructures the offspring's microbiota and the associated metabolic homeostasis related to obesity. A diet that was higher in omega 6 fats than omega 3 contributed to a leaky gut in the kids, potentially contributing to weight gain. The findings further the call for omega 3 supplementation during pregnancy. "The findings of this study help us understand why today so many people are obese, and how to prevent this health problem. Excessive omega 6 to omega 3 ratios in Western diets may have contributed to a trans-generational epidemic of chronic metabolic disease, especially obesity, which can partially be attributed to persistent gut microbiota disturbance," Jing X. Kang M.D., Ph.D., Director, Laboratory for Lipid Medicine and Technology at Massachusetts General Hospital/Harvard Medical School tells NutritionInsight.

"Maternal n-3 PUFA supplementation [omega 3], especially during lactation, is potentially an effective and safe strategy for reducing the risk of obesity and relation conditions in children." The modern Western diet is typically deficient in healthy omega 3 fats, which are found in oily fish, nuts and seeds. Humans cannot produce these fats in their body and need to get them from their diet. Instead, the Western diet is often overloaded with less healthy omega-6 fats, which are found in vegetable oils and fried foods such as chips and crisps.

This imbalance in dietary fats may contribute to obesity, heart disease and other chronic diseases. However, prior to the study, little was known about how mothers' omega 3/omega 6 ratios affected their children's health. In the mice study, the balance of omega 3 and omega 6 fats in the mother's body

was also found to affect the health of her pups' guts. If a mother had more omega 6 fats in her body during pregnancy or breastfeeding, her pups' guts were more 'leaky,' which led to inflammation in their blood. These babies also had more unhealthy bacteria in their intestines, which may have contributed to their weight gain.

However, if these pups were breastfed by a mother with a healthier ratio of omega 3/omega 6 fats, their guts were healthier and had more diverse bacteria. Interestingly, the effect of the mother's fat on her babies gut health continued throughout their life until they were adults. NutritionInsight has recently reported on a study that similarly identified a link between the gut and obesity.

"We have shown that a mother's diet during pregnancy and breastfeeding may affect her babies' weight and gut health in the long term. Furthermore, we know that your gut bacteria are extremely important for your overall health, particularly to maintain a healthy weight and gut," says Dr. Ruairi Robertson, lead author of the study. "These results suggest that if a mother eats more healthy fats and less unhealthy fats during pregnancy and breastfeeding, she may be able to help the right types of microbes grow in her baby's intestines and form a healthy gut for later life," he adds.

Omega consumption and pregnancy Previously there have been concerns over pregnant women eating too much fish due to the potential dangers of mercury. However, this is only a concern for certain types of fish, particularly predatory fish such as shark, swordfish and certain types of tuna. Current recommendations suggest that everyone, including pregnant women, eat 2 portions of oily fish (mackerel, salmon, sardines, trout, herring) per week. "The benefits of

omega 3s from oily fish far outweigh the risks of mercury, if kept to two to three portions per week" says Catherine Stanton, Principal Investigator at Teagasc and APC Microbiome Ireland. "However, most important is the balance of fats. Aim to get enough omega 3s from oily fish, nuts and seeds whilst at the same time reducing omega 6 intake from vegetable oils and fried foods."

Omega 3 supplements are commonly marketed in the pre and post-natal markets. Innova Market Insight data notes that omega 3 launches with a particular pregnancy or breastfeeding positioning are increasing, with a 34 percent annual growth between 2013 and 2017 being measured. Health benefits beyond a healthy gut in offspring include the potential reduction of allergies in offspring. Furthermore, a study at the University of Alabama at Birmingham found that omega 3 fatty acid supplementation during pregnancy in smokers could have protective effects against preterm delivery and low birth weight in women who have had previous preterm deliveries. By LaxmiHaigh

Athletic endurance improved with Beneo's low glycemic carb, study finds

24 May 2018 Nutrition Insight

Athletes who consumed a drink containing the functional carbohydrate, Palatinose, before exercise exhibited improved cycling performance, a study at the University of Freiburg has found.

Image © iStock.com/gpointstudio



This was in comparison with participants who were given maltodextrin, a high glycemic carbohydrate, before exercising. The study's findings could hold potential for the use of Palatinose as a sports nutrition ingredient. Beneo's Palatinose is naturally-sourced from sugar beet and is said to deliver full carbohydrate energy (4kcal/g) in a more balanced way, due to a slower and more sustained uptake. "The results of this study show that Beneo's Palatinose improves fat oxidation during endurance exercise, in line with the specific properties of Palatinose in delivering slower and sustained release, full carbohydrate energy and a lower rise in blood glucose levels," says Anke Sentko, Vice President Regulatory Affairs and Nutrition Communication at Beneo.

The study used a randomized, double-blind cross-over design to compare the effects of Palatinose and maltodextrin on fuel flexibility. Meaning, the switch between fat and carbohydrates as an energy source and the subsequent effect on performance. Twenty experienced cyclists participated, with each consuming 750ml of a ten percent carbohydrate drink before undertaking 90 minutes of exercise. The results highlighted that when the athletes consumed the drink containing Palatinose they showed higher fat oxidation rates during the 90-minute endurance trial. They also performed better in the subsequent sprint test.

The researchers further explain that on average, the athletes finished the time trial an entire minute faster with the drink containing Palatinose and were able to pedal more powerfully in the final five minutes of the time trial, compared to the maltodextrin control. Furthermore, the results suggest that Palatinose stabilized the blood glucose profile of the participants. Meaning, there was a lower blood glucose rise

before exercise which was maintained throughout the endurance exercise. As a result, a higher fat burning rate and lowered carbohydrate oxidation in energy metabolism were promoted.

Potential for sports nutrition applications

The findings could hold potential for the use of Palatinose in sports nutrition applications. Sports drinks and pouches traditionally contain high glycaemic carbohydrates, such as maltodextrin or glucose. However, researchers state that if high-fat oxidation rates are wanted or required, for example for basic endurance training, or for key phases in competitive endurance activity, then Beneo's Palatinose delivers clear advantages with its steady and sustained carbohydrate energy supply.

"Palatinose is an innovative carbohydrate choice in sports nutrition. Athletes and sports people who have tried it out in their daily practice report that they feel the difference from its steady and sustained energy release. There is market demand for such sports nutrition products and the findings of this study offer food and drink manufacturers a way that they can develop products that help people achieve their sporting goals," adds Sentko.

Protein provides benefit for adult bone and joint health, expert consensus reports

17 May 2018 Nutrition Insight

Dietary protein intake above the recommended levels may help reduce bone loss and fracture risk in seniors with osteoporosis, an expert consensus reports.

Based on an analysis of major research studies, the review, published in Osteoporosis International, found that a protein-

rich diet is beneficial for adult bone health. The consensus debunks the popular myth that too much protein may be damaging to bone health. "Adequate intake of dietary protein, together with calcium, is needed for optimal bone growth in children and the maintenance of healthy bone at all ages. This message needs to be reinforced in view of currently circulating myths suggesting that too much protein causes 'acid load' and is damaging to bone health," says Professor Rene Rizzoli, Professor at the Division of Bone



Diseases of the Geneva University Hospitals and Faculty of Medicine.

"In fact, in the elderly, we find that a common problem is not too much protein, but too little. This review of the literature confirms that a balanced diet with sufficient protein intake, regardless whether of animal or vegetable source, clearly benefits bone health when accompanied by adequate calcium intake. This is particularly important for seniors with osteoporosis, and individuals at risk of malnutrition due to acute or chronic illness, or recovering from an injury."

Several systematic reviews and meta-analyses have addressed the benefits and risks of dietary protein intakes for bone health in adults. However, this narrative review of the literature summarizes and synthesizes recent systematic reviews and meta-analyses and highlights key messages.

The key findings of the extensive literature review include:

- Hip fracture risk is modestly decreased with higher dietary protein intakes, provided calcium intakes are adequate;
- Bone mineral density (BMD), which is an important determinant of bone strength, appears to be positively associated with dietary protein intakes;
- Protein and calcium combined in dairy products have beneficial effects on calciotropic hormones, bone turnover markers and BMD. The benefit of dietary proteins on bone outcomes seems to require adequate calcium intakes;
- There appears to be no direct evidence of osteoporosis progression, fragility fractures or altered bone strength with the acid load originating from a balanced diet.

NutritionInsight has previously reported on the rising consumer demand for products that target bone health. World populations are getting older and, with age the risk of bone and joint health issues – such as osteoporosis, rheumatoid arthritis and osteoarthritis – increases. A 2017 DSM survey found that almost a third of consumers already take dietary supplements to keep their bones (32 percent) or joints (28 percent) healthy, and purchasing behavior is generally for relief products when they are already suffering from a complaint. Collagen peptides have proven to be a popular choice, but even probiotics seek to enter the busy market.

However, clinical findings that influence the diet of those at risk from osteoporosis could be helpful in preventing the onset of bone and joint problems. The expert consensus is endorsed by the European Society for Clinical and Economical Aspects of Osteoporosis, Osteoarthritis, and Musculoskeletal Diseases (ESCEO) and the International Osteoporosis

Foundation (IOF).

Nutrient breakthrough: Scientists show plants can be a dietary source of vitamin B12

24 May 2018 Nutrition Insight

Scientists at the University of Kent have made a significant discovery about how the vitamin B12 content of some plants can be improved to make vegetarian and vegan diets more complete. Vitamin B12 (known as cobalamin) is an essential dietary component but vegans and vegetarians are more prone to B12 deficiency as plants neither make nor require this nutrient.

A team, led by Professor Martin Warren at the University's School of Biosciences, has shown that common garden cress can take up cobalamin. The amount of B12 absorbed by garden cress is dependent on the amount present in the growth medium, and the researchers were able to confirm B12 uptake by showing that the nutrient ends up in the leaf.

Working with biology teachers and year 11 and 12 pupils at Sir Roger Manwood's School in Sandwich, the scientists investigated the detection and measurement of B12 in garden cress. The pupils grew garden cress containing increasing concentrations of vitamin B12. After seven days growth, the leaves from the seedlings were analyzed and found to have absorbed cobalamin from the growth medium.

To confirm this initial observation, the scientists made a type of vitamin B12 that emits fluorescent light when activated by a laser. This fluorescent B12 was fed to the plants and it was found to accumulate within a specialized part of the leaf

cell called a vacuole, providing definitive evidence that some plants can absorb and transport cobalamin.

The discovery also has implications for combating some parasitic infections. Not only did the researchers demonstrate that some plants can absorb vitamin B12, but they were also able to use the same technique to follow the movement of fluorescent B12 molecules into worms. These results demonstrate that this is a powerful model to learn about how B12 is absorbed and, as worms must use a different absorption system to mammalian systems, there is the possibility of exploiting this difference to try and treat worm-based parasites such as hookworms.

Speaking about the discovery's potential use for the manufacturing of products such as supplements, Warren tells NutritionInsight: "Companies have marketed whole cell extracts of things like spirulina (a cyanobacterium) as being rich in B12. However, in this case, spirulina makes the wrong type of B12 and is of no nutritional value to humans. However, many macro and microalgae are a good source of B12 and could be used as supplements. Our plant technology needs more refinement in order to bolster the level of B12 in them." Warren notes that before large-scale cultivation is possible, optimization of the system is needed to find the conditions under which plants can absorb B12 from the soil with greater efficiency.



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The observation that certain plants are able to absorb B12 is important as such nutrient-enriched plants could help overcome dietary limitations in countries such as India, which have a high proportion of vegetarians and may be significant as a way to address the global challenge of providing a nutrient-complete vegetarian diet, a valuable development as the world becomes increasingly meat-free due to population expansion and environmental concerns.

“We have been talking to Indian colleagues about using a hydroponics systems to improve B12 uptake – and then to test the B12-enriched plant material on patients who are B12 deficient. B12 deficiency and insufficiency is a major problem in India – and finding new ways to supply B12 to those who need it is something clinicians are very interested in,” he notes.

So what will be the researchers’ next steps? “We are looking at the global problem of B12 deficiency and insufficiency – and we are also speaking to several companies about developing systems to produce the vitamin in higher yields so that we can make the vitamin more generally available. Vitamin B12 is the most expensive of the water-soluble vitamins and hence we are looking at ways to reduce its production costs,” he concludes.

By Lucy Gunn

Growing applications for colorless curcumin extract, protein shake helps kids gain inches

04 May 2018
Nutrition Insight

In nutrition news this week, Nutritional Growth Solutions Ltd. (NG Solutions) has launched a kids protein shake

which is clinically shown to improve the height of “short and lean” kids, without an increase to BMI.

Strong steps were taken by Indian company AureaBiolabs, as they received self-affirmed GRAS status for CuroWhite, their color, odor and taste free curcumin extract. Further in news from the Indian continent, Sabinsa Corporation’s parent company, Sami Labs, enjoyed national honor with a government award esteeming their international exports and export sales.

Grow tall, kids! Height boost product launched to the European market.

Nutritional Growth Solutions Ltd. (NG Solutions) has launched Healthy Height – a kids protein shake clinically shown to improve children’s height in children considered “short.” Healthy Height has 12 grams of high-quality bone and muscle-building whey protein in each serving and is fortified with vitamins and minerals. It also touts being hormone and gluten-free and is a source of key growth enhancers: amino acids. NG Solutions touts the product as giving pediatricians a new nutrition-boosting alternative for children who are short and lean.

Speaking on the fact that some parents resort to human growth hormone (HGH) therapy when trying to aid their kid’s growth, but that many children in Europe are not eligible, LironFendell, CEO for Nutritional Growth Solutions explains that: “We decided to address this gap in the nutrition

market, and developed Healthy Height, a nutritious and delicious formulation designed especially for kids. We

conducted clinical research to see how this supplement plays a role in height gain.”

“The findings showed that providing short and lean young children with the right nutrients in specific doses helped increase their growth rate within six months with no increase in BMI.”

“With Healthy Height, parents have new hope for improving their children’s height,” says Fendell. “With a simple scoop-shake-drink, kids have a refreshing smoothie to satisfy their picky palates – before school, as an afternoon snack or with dinner, while helping them get the nutrients they need to fuel their growth,” he concludes.

Positive steps for AureaBiolabs color, odor and taste free curcumin extract.

AureaBiolabs has Self-Affirmed GRAS (Generally Recognized as Safe) status for their product, CuroWhite, for various food and beverage applications. These include dairy products, desserts, nutritional bars, meal supplement drinks, dietary supplement products, bakery and confectionary products and cosmetics. CuroWhite is a bioavailable blend of hydrogenated curcuminoids, a key ingredient from the company, who state that they are dedicated to the development and manufacturing of nutraceutical products with functional benefits.

Thus, CuroWhite provides all of the natural “goodness” of curcumin (extracted from turmeric), but it is devoid of its strong yellow hue, taste or the odor of traditional turmeric making it ideal for adding to food without changing its authentic taste. As well as strengthening their commitment to customers and a sustainable, traceable supply chain, John Nechupadom, Managing Directors adds that “this is a testament to Aurea’s promise of delivering high-quality products without compromising on our

Image Source: www.forpressrelease.com



commitment to sustainable production processes and natural products.”

Recognition of excellence: Sami-Sabinsa group celebrate Indian award.

Further in news from the Indian continent comes with Sabinsa Corporation's parent company, Sami Labs, being honored with the Government of India's annual outstanding export award; the Certificate of Merit Outstanding Export Performance Award for the year 2016-17 under the category of Basic Inorganic & Organic including Agro Chemicals. The award recognizes company excellence in expanding into geographic markets and maintaining significant, sustained export sales.

“We are delighted to have been chosen for this outstanding export award. It is a testament to the whole firm's dedication to growing our international markets, and we look forward to increasing our reach further around the globe. We are deeply indebted to all customers who have reposed their trust and confidence in the Company,” said Mr VG Nair, Director and CEO, Sami Labs Ltd, as he received the award from Shri Suresh Prabhu, Honorable Minister of Commerce & Industry and Civil Aviation, Government of India, at Mumbai on 21st of April.

With more than 100 full-time scientists conducting ongoing research in India and the United States, Sabinsa and parent company Sami Labs Ltd. continue to develop, patent and manufacture phytonutrients for the world market, with ingredients that are both Halal and Kosher, including turmeric and black pepper.

By LaxmiHaigh



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Is krill oil better than fish oil for omega-3?

Medical News Today 23 May 2018 By Rachel Nall

Krill oil and fish oil supplements are two sources of omega-3 fatty acids including DHA and EPA. While oil from both krill and fish provide health benefits, there are differences in their origin, price, and benefits.

Fish oil comes from oily fish, such as tuna, herring, or sardines. Krill oil comes from a small, shrimp-like animal called krill. Krill oil has a distinctive red color while fish oil supplements are typically yellow or gold. Krill oil is usually more expensive than fish oil. While each supplement type contains omega-3 fatty acids, there are various risks and benefits in taking each supplement type. Read on to find out more.

Benefits of krill oil and fish oil Both krill oil and fish oil contain omega-3 fatty acids. Some of the most popular and beneficial omega-3 fatty acids are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). When consumed in fish, these fatty acids have been shown to boost a person's overall heart health and reduce the risks of heart attack and coronary artery disease. However, while research has shown eating whole fish can have heart-protecting benefits, scientific studies have not yet proven that taking omega-3 supplements offers the same benefits as eating fish.

However, the National Institutes of Health (NIH) state that the specific benefits of taking omega-3 supplements include:

- Reducing high triglyceride levels. High triglyceride levels are associated with an increased risk for heart disease.

- Relieving rheumatoid arthritis. Evidence suggests that omega-3 supplements may help relieve the symptoms of rheumatoid arthritis.
- Relieving dry eye symptoms. Some studies have indicated that omega-3 supplements help to improve eye moisture and reduce the symptoms of dry eye disease. However, other large-scale studies have found that taking omega-3 supplements are no better than a placebo for eye dryness, so more research is needed. Drug stores and online supermarkets sell both fish oil and krill oil supplements.

What does the research say?

A study from 2011 compared the effects of fish and krill oil, finding that they resulted in similar blood levels of EPA and DHA. However, people took 3 grams (g) of krill oil and only 1.8 g of fish oil, which may suggest that a person needs to take almost twice as much krill oil as fish oil to get the same benefits. However, the amount and concentration of omega-3 in krill and fish oil vary depending on the product. Some krill oil manufacturers claim that the krill oil omega-3s are better absorbed than fish oil omega-3s, so a lower concentration works just as well. However, there is no current proof that this statement is true.

According to the study's authors, 30–65 percent of krill oil's fatty acids are stored as phospholipids, while the fatty acids in fish oils are instead stored primarily as triglycerides. The researchers suggest that the body may be able to use fatty acids stored as phospholipids more easily. However, despite this possibility, a person may still have to take more krill oil capsules than fish oil to get an equivalent amount of omega-3s.

Another small-scale study published in 2013 found that after 4 weeks of taking only one of the supplements, krill oil led to higher levels of EPA and DHA in a person's blood

compared with fish oil. Although both supplements increased levels of healthful omega-3 fatty acids, they also increased levels of low-density lipoprotein (LDL) cholesterol, which is the 'bad' cholesterol. Studies are not consistent, though. A study from 2015 found no differences in krill oil and fish oil in the blood after 4 weeks of taking supplements.

So, while some research suggests that the body might better absorb krill oil, other studies find no difference between fish and krill oil. More research is therefore needed. The above research only looks effects of the oil on blood levels, which is just one marker of their potential benefits. No study has compared these products to see if one works better than the other for the specific uses that people are interested in, such as bodybuilding or promoting heart health.

One egg per day may keep stroke at bay

Medical News Today 22 May 2018 By Maria Cohut

Popular knowledge has it that eggs, due to their high cholesterol content, are quite bad for us. New research, however, suggests we would do well to indulge in more egg consumption: about one per day could help us to steer clear of cardiovascular conditions.

We might think of eggs as unhealthful, but could they protect against cardiovascular events? If you've ever heard that eating more than two or three eggs per week is bad for your health, you're not alone. Some studies have suggested that, due to yolks' high cholesterol content, eggs can be a harmful food — particularly for people already at risk of cardiovascular events. The idea that eggs may pose danger to health has also been spread widely by

many popular websites and magazines. However, despite being rich in cholesterol, eggs are also a great source of healthful nutrients, such as protein, vitamins, phospholipids, and carotenoids.

And, recent research has increasingly gathered evidence showing that eggs don't really influence the risk of cardiovascular disease (CVD). One study published in 2013 in *The BMJ*, for example, concluded that eating up to one egg per day was not tied to a heightened risk of heart disease or stroke. Another study, published earlier this month in the *American Journal of Clinical Nutrition*, suggested that a "high-egg diet" of up to 12 eggs per week did not increase cardiovascular risk. But recent research from the School of Public Health at Peking University Health Science Center in Beijing, China, goes even further. Lead investigators Prof. Liming Li and Dr. Canqing Yu have now found that a diet in which eggs are consumed on a regular basis may actually protect cardiovascular health. The team's findings were published yesterday in the journal *Heart*.

'Moderate egg consumption' may lower risk

About 84 million people in the United States have some form of CVD, and about 2,200 people die each day due to their condition. And, in China, the rates for cardiovascular conditions are even higher. In China in 2014, an estimated "837,300 urban residents and 1,023,400 rural residents died from cerebrovascular diseases," according to recent data. And the

most widespread conditions are stroke — both hemorrhagic and ischemic — and ischemic heart disease, in that order.

These numbers motivated the researchers involved in the new study to investigate what role — if any — egg consumption plays in modifying the risk for CVD. In order to do so, they analyzed data sourced via the China Kadoorie Biobank, which is an ongoing prospective study investigating the genetic and environmental causes of chronic diseases among the Chinese population.

In this study, Prof. Li and team analyzed health-related information from 416,213 adult participants recruited in 2004–2008. They were all free of cancer, CVD, and diabetes at baseline. At recruitment, the participants reported how often they ate eggs — 13.1 percent of them admitting to daily consumption (about 0.76 eggs per day) and 9.1 percent saying that they only indulged in eggs rarely (0.29 eggs per day) or not at all.

There was a median follow-up period of 8.9 years, during which new health diagnoses and deaths were recorded. During that time, 83,977 participants received a CVD diagnosis, and 9,985 people died due to CVD-related causes. Moreover, 5,103 major coronary events were recorded. The researchers' analysis revealed that individuals who usually ate about one egg per day had a 26 percent lower risk of experiencing hemorrhagic stroke, a 28 percent lower risk of death due to this type of event, and an 18 percent lower risk of CVD-related mortality.

Almost daily egg consumption — or around 5.32 eggs per week — was also linked to a 12 percent lower risk of ischemic heart disease, compared with people who never or rarely ate this food (amounting to approximately 2.03 eggs per week).

Image © iStock.com/lovro77



"The present study finds that there is an association between moderate level of egg consumption (up to 1 egg/day) and a lower cardiac event rate," the study authors explain.

Prof. Li and team warn that this was an observational study, so it would be unwise to conclude that there is necessarily a causal effect between egg consumption and a lower risk of CVD. However, the large population sample size with which the researchers worked, as well as the fact that they adjusted for confounding factors — both known and potential CVD risk factors — imply that this is a strong possibility. "Our findings," the researchers conclude, "contribute scientific evidence to the dietary guidelines with regard to egg consumption for the healthy Chinese adult."

Could eating yogurt reduce inflammation?

Medical News Today 15 May 2018 By Tim Newman

Can starting a meal with a single portion of yogurt help to reduce inflammation? According to a new study, the answer is "yes." Its authors believe that yogurt might protect us from the harmful byproducts by-products of gut bacteria. A new study investigates the anti-inflammatory powers of yogurt.

Inflammation is a hot topic at the moment. It plays a role in a varied range of conditions, including psoriasis and eczema. It has also been implicated in some less obvious conditions, such as Alzheimer's and diabetes, and it may even play a part in some mental illnesses, such as depression and schizophrenia. Overall, inflammation is not a bad thing. In fact, it is the body's way of protecting itself; it is the first line of defense in the innate immune system.

However, if inflammation continues for longer than necessary, it becomes a problem — the body is, essentially, attacking itself. Although there is a range of pharmaceutical anti-inflammatories available, they all have downsides, and being on any medication long-term is not ideal. So, the race is on to find safer, more natural alternatives.

Could dairy be the answer?

Over the years, there has been much debate surrounding dairy and its role in inflammation. Some believe that it is anti-inflammatory, while others say the reverse. So, in the search for a definitive answer, researchers from the University of Wisconsin-Madison put yogurt to the test. The study was headed up by Brad Bolling, an assistant professor of food science. Regarding the dairy debate, he says: "There have been some mixed results over the years, but [a recent article] shows that things are pointing more toward anti-inflammatory, particularly for fermented dairy."

At this stage, before we dive into the details, it is worth noting that the research was funded by the National Dairy Council. They are a non-profit organization who are supported by the United States Department of Agriculture's national dairy checkoff program, the objective of which is to promote dairy products. However, the research is presented in two papers that are published in the peer-reviewed Journal of Nutrition and

Gut bacteria and endotoxins

Yogurt is thought to reduce inflammation by improving the

integrity of the intestinal lining. And, by bolstering this layer of tissue, endotoxins — produced by gut bacteria — cannot cross into the bloodstream and promote inflammation. To examine the potential benefits of yogurt on inflammation, in the scientists' first experiment, they recruited 120 premenopausal women, half of whom were obese. Half of the participants were asked to eat 12 ounces of low-fat yogurt each day for 9 weeks while the others ate a non-dairy pudding instead.

Throughout the experiment, at various points in time, the researchers took blood samples and assessed them for biomarkers of endotoxins and inflammation. The results, which were published in December 2017, showed that some inflammatory markers — such as TNF-alpha — were significantly reduced in the yogurt eaters. The British Journal of Nutrition.

The second paper, published recently in the Journal of Nutrition, concentrates on a different part of the same study. At the start and end of the 9-week trial, the women were given a high-calorie meal challenge. This challenge was designed to stress their metabolism by overloading them with a high-fat, high-carbohydrate breakfast. Half started the feast with a serving of yogurt, while the other half began with a non-dairy pudding. Bolling explains the contents of the meal challenge, saying, "It was two sausage muffins and two hash browns, for a total of 900 calories. But everybody managed it. They'd been fasting," he continues, "and they were pretty hungry."

Tests over the following hours — as the meal was digested — showed that the yogurt eaters had significant reductions in certain endotoxin markers. The researchers also noted that in obese participants, post-meal glucose levels dropped more quickly



Image © iStock.com/GeorgeRudy

in the yogurt group, which demonstrates improved glucose metabolism. "Eating 8 ounces of low-fat yogurt before a meal is a feasible strategy to improve post-meal metabolism and thus may help reduce the risk of cardiovascular and metabolic diseases." Ruisong Pei, postdoctoral researcher

The scientists' future work will focus on understanding which compounds within yogurt are having these beneficial effects. As Bolling says, "Ultimately, we would like to see these components optimized in foods, particularly for medical situations where it's important to inhibit inflammation through the diet. We think this is a promising approach." However, research into this topic is relatively new, so the results need to be replicated before we all switch to yogurt-based appetizers.

Cognitive function and ageing: Glycero-phospholipids may be a 'useful intervention' – review

By Cheryl Tay 08-May-2018
NutraIngredients Asia

Modifying nutritional intake to include glycerol-phospholipids (GPL) may help to maintain cerebral structural integrity in old age, say researchers in Australia.

Academics at Melbourne's Swinburne University of Technology and Deakin University reviewed research on the topic so far, and found that a substantial number of studies have indicated that at both the macro- and microstructural levels, cerebral structural integrity is reduced with age. In a review article published in the journal *Frontiers in Aging Neuroscience*, they wrote that modifying nutritional intake via supplementation could effectively slow down age-related cerebral structural decline. Several clinical trials involving older adults have shown that chronic supplementation

with omega-3, B vitamins, or resveratrol may lower the rate of decline, or even repair cerebral tissue.

The researchers wrote that modifying nutritional intake was "quickly becoming recognised as a means of supporting cerebral structure with age, with a number of trials indicating that chronic supplementation with B vitamins, omega-3 polyunsaturated fatty acids, or resveratrol mediates reduced cerebral deterioration over time, perhaps even facilitating repair".



GPL for geriatrics

Additionally, a number of animal studies have found that supplementation with GPL may support cerebral structure, but these effects have yet to be explored in humans. Despite this, however, the paper's authors stated that there were several factors "predicting poorer cerebral structure in older humans, which GPL supplementation appears to beneficially modify or protect against". These factors included increased risk of oxidative stress, higher concentrations of pro-inflammatory messengers, and poorer cardiovascular and cerebrovascular function. This has led scientists to hypothesise that GPL supplementation may benefit cerebral structure in seniors, which will in turn have an impact on cognitive function.

"The consumption of phospholipids (PL) and in particular the glycerophospholipids (GPL), may also benefit cerebral structure and

subsequently cognitive function in older adults. "The GPL species phosphatidylcholine (PC), phosphatidylethanolamine (PE), and phosphatidylserine (PS) are abundant in mammalian cell membranes, and there is growing evidence that provision of these GPL (particularly PC and PS) can improve cognitive function in animals via oral supplementation," they noted.

Anti-ageing avenues

The researchers concluded: "Improving the trajectory of age-related cerebral deterioration and therefore, cognitive decline through readily accessible interventions such as nutritional supplementation may help lower the risk and delay the onset of age related conditions, such as age-associated memory impairment and mild cognitive impairment.

"Moreover, it may be possible to delay the onset of pathological conditions such as dementia, thereby contributing to a reduced incidence of this disease. "Given the ease at which nutrition can be modified, and the relative absence of harmful side effects, nutritional supplementation, particularly with GPL, may well be a useful intervention for supporting neuro-cognitive health with increasing age."

Could higher omega-3 to omega-6 ratio aid birth outcomes? Korean population study investigates

By Cheryl Tay 24-May-2018
NutraIngredients Asia

Pregnant women with a high



intake of omega-6 fatty acids, even when they have adequate omega-3 levels, tend to deliver babies lower in weight and birth length, say researchers in South Korea.

Studies have shown an association between maternal fatty acid intake and pregnancy outcomes, including birth weight, birth length and gestational age, due to foetal development being entirely dependent on essential fatty acid supply from the mother. However, the mechanisms behind the correlation between maternal fatty acid intake and foetal size have not been fully understood.

Input versus output

As such, researchers at Ewha Woman's University and Seoul National University conducted a study to determine the link between maternal fatty acid intake and birth outcomes among pregnant women who were subjects in the Mothers and Children's Environmental Health (MOCEH) prospective cohort study in South Korea. Between August 2006 and December 2010, they recruited a total of 1,407 pregnant women aged 30 to 34 at 12 to 28 weeks' gestation, monitoring their dietary intake using the one-day, 24-hour recall method. The researchers also analysed the pregnancy outcome data (infants' gestational age, birth weights and birth length) in relation to the women's fatty acid intake. They then observed that after adjustment for confounding factors, high maternal intake of omega-6 fatty acids were correlated with adverse effects on birth weight and length.

Multiple regression analysis showed that the odds ratio for the risk of birth weight being among the lowest 10% was higher for the infants whose mothers were among the top 20% of participants in terms of omega-6 intake, compared to those whose mothers were among the bottom 20%. In addition, the odds

ratio for birth length being among the top 10% was lower for the infants whose mothers' omega-6 intake put them in the top 20% of participants, as opposed to those whose mothers were in the bottom 20%.

External and internal factors

However, the researchers found no correlation between maternal omega-3 intake and birth weight or birth length. They also listed several limitations of the study: firstly, it was difficult to accurately calculate the participants' daily intake due to the one-day, 24-hour recall survey used. Secondly, the impact of fatty acid supplementation was not included in the results, due to insufficient data on products containing omega-3 and omega-6. Over 50% of the participants were taking a variety of supplements, with only 3% consuming supplements containing omega-3 and / or omega-6.

As omega-3 supplementation (such as with DHA) can influence pregnancy outcomes, the researchers wrote that more studies are required to explore the impact of omega-3 supplementation. Lastly, the participants' plasma omega-3 and omega-6 levels were not measured. This could have explained the link between maternal omega-6 intake and birth weight and length, a factor the researchers said would need to be considered in future studies.

They concluded: "This study was the first to investigate the relationship between the intake of fatty acids and pregnancy outcome among pregnant women in Korea. Despite adequate levels of omega-3 fatty acids, women who had high levels of omega-6 fatty acids tended to have lower birth weight infants. "Therefore, reducing excessive omega-6 fatty acid intake of pregnant women in Korea will improve

maternal nutritional status and also have more positive outcomes of pregnancy."

Creatine-electrolyte supplementation linked to increased power in study on male cyclists

By Adi Menayang 07-May-2018
Nutralngredients USA

Creatine supplementation is popular for muscle growth, but researchers at Western Washington University suggest it might benefit endurance sports too.

Male recreational cyclists who received creatine and electrolyte supplementation exhibited increased power during a short-duration cycle sprint when researchers measured their performance using a Velotron ergometer, according to a study published last week in the Journal of the International Society of Sports Nutrition. Participants supplemented with the placebo, on the other hand, exhibited no such improvement.

The increase in peak power output observed in this study is the first time a significant increase in overall and repeated peak power output has been observed during sprint cycling following creatine-electrolyte supplementation, the researchers from Western Washington University wrote in the report.

Study design

The design was randomised, double-blind, and placebo-controlled. Twenty-five male recreational cyclists between the ages of 19-33 were included.



They were screened for conditions that could affect creatine absorption or metabolism, such as cardiac, kidney, or liver diseases. Participants were then divided randomly into two groups given either the supplement or placebo. The supplement contained 4 g of creatine monohydrate combined with electrolytes (114 mg sodium chloride, 171 mg calcium chloride, 286 mg magnesium chloride, and 171 mg sodium chloride) per day.

Baseline data collection was conducted at the beginning of the study. During this time, participants performed five short-duration cycle sprints with two-minute rests between each. Intervention period lasted for six weeks, in which the participants took their daily dose of supplement or placebo, before another cycle test is conducted at the end of the period.

Results

The participants supplemented with creatine and electrolytes showed a 4% increase in overall peak power and a increase in overall mean power from baseline to the end of the study. Meanwhile, for the placebo group, no differences were observed in overall peak and overall mean power. The postulated mechanism is that creatine monohydrate supplementation improved peak and mean power output during sprint cycling, and the electrolytes further improve creatine and the ergogenic effect.

“With regards to creatine-electrolyte supplementation and repeated sprint cycling performance ... previous researchers have not reported significant pre to post-supplementation increases in peak power output, and have reported mixed results with respect to changes in mean power output,” they wrote. But with the present study, the researchers argued it to be the first time a significant increase in overall and repeated peak power output has been observed during sprint cycling following creatine-electrolyte supplementation.

Dark chocolate could improve vision... maybe only for a short period after consumption, says study

By Douglas Yu 08-May-2018
Confectionery News

Eating dark chocolate can improve vision in humans, but scientists warn the effects could only last for a few hours.

Flavanols in dark chocolate are known for having positive effects on heart functions and decreasing the risk of strokes. However, Dr. Je Rabin at the University of Incarnate Word's Rosenberg School of Optometry decided to find out if these antioxidants could benefit visions as well.

Study methods and results Rabin explained the research team recruited 30 young adults in a blinded exam, in which they were tested for their high-contrast visual acuity and small-letter contrast sensitivity around two hours after ingestion of a Trader Joe's 72% cacao dark chocolate bar or a crispy rice milk chocolate bar. Then they did a cross-over test in which participants originally consuming dark chocolate ate milk chocolate and vice versa.

“Our initial findings showed participants eating dark chocolate had a small improvement [in visual acuity compared to milk chocolate eaters], and we reasoned that this is due to an increase of blood flow either to the retina or and/or– the visual part of the brain,” said Rabin. However, there was a significant improvement in contrast sensitivity test during which they

were asked to recognize letters of the same size, but blended into a low-contrast background, he noted.

“We also computed a single composite score, and that shows an approximately 60% improvement in one's ability in seeing low-contrast targets,” added Rabin. “We didn't measure the duration of the effect...” Rabin said there are some limitations of the study including that participants may have

been aware of the type of chocolate consumed based on taste. “We didn't measure the duration of the effect of dark chocolate,” he added. “The effect usually disappears in the body within six hours... so it needs further evaluation.”

Dietary balance between omega-3 and omega-6 crucial to improving health: Chinese population study

By Cheryl Tay 22-May-2018
NutraIngredients Asia

Maintaining a balance between omega-3 and omega-6 intake can lead to better overall health, say researchers in China, who also noted that marine-sources of PUFAs appear to be particularly beneficial among the local population.



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Polyunsaturated fatty acids (PUFAs) have been said to possess pleiotropic properties useful against certain chronic diseases, but epidemiological evidence on an association between mortality and the intake of specific PUFAs has so far been limited and contradictory. Researchers at China's Zhejiang University therefore conducted a study to determine the link between specific dietary PUFAs and mortality in adults in China and the US.

Fats fighting fatalities

They tracked 14,117 participants in the China Health and Nutrition Survey CHNS and 36,032 participants in the National Health and Nutrition Examination Survey (NHANES) up through 2011. They subsequently found that a total of 1,007 deaths had accrued over a median of 14 years in the CHNS, while in the NHANES, 4,826 deaths had accrued over a median of 9.1 years. They wrote: "Dietary marine omega-3 PUFA was robustly associated with reduced all-cause mortality in the CHS. Nevertheless, this inverse relationship was not observed in the NHANES."

"The overall mortality was positively associated with the intake of α -linoleic acid (ALA) in the CHNS, whereas weak inverse associations of ALA and linoleic acid (LA) with all-cause mortality were found in the NHANES." They added that higher dietary intake of arachidonic acid (AA) was consistently related to lower all-cause mortality in both surveys. Additionally, PUFA intake at an omega-6/ omega-3 ratio of 6:10 was linked to reduced risk of death in the CHNS.

Different fats for different stats

However, the self-reported dietary intakes measured by the 2-hour dietary recall in the NHANES may not have reflected long-term dietary patterns, and data on cause-specific mortality in the CHNS was lacking.

Furthermore, the researchers did not adjust for trans-fatty acid consumption because of insufficient data. Still, they noted that this was unlikely to alter the results, since trans-fatty acid intake in China is low.

They concluded: "Different sub-types of PUFAs divergently are associated with mortality, and the investigated associations also vary between Chinese and US populations. "Marine omega-3 PUFA and AA may be more protective for the Chinese population compared with the US population; high consumption of ALA and LA may lower risk of death for the US population, but elevate mortality for Chinese population."

"These findings suggest maintaining an omega-6 / omega-3 balanced diet for overall health promotion outcomes. Besides, PUFA consumption with an omega-6 / omega-3 ratio of 6:10 may reduce risk of total mortality for Chinese population."

Food fortification 'not viable' to combat iron-deficiency anaemia among the poor: Population study

By Cheryl ay 08-May-2018 - NutraIngredients Asia

Food fortification may not be a viable solution to iron-deficiency anaemia in rural areas, say researchers in India and the US. Globally, iron-deficiency anaemia is common among the poor.

While appropriate supplementation or food fortification may help to prevent it, such initiatives often do not reach those who need it the most: the poorest demographics, children not attending school, men, and seniors. Researchers at the Massachusetts Institute of

Technology and India's FLAME University conducted a study to assess the impact of a potential strategy to combat iron-deficiency anaemia in rural India, using salt fortified with iron and iodine, or double-fortified salt DFS.

They carried out a large-scale experiment in 400 villages in rural Bihar to determine the impact of selling DFS, and giving it away free of charge; at baseline, 5% of the study population was anaemic. In 200 villages, they sold DFS for the first time, at half the regular retail price for two and a half years. In 200 of those villages, they delivered it for free to seven households for almost two years. In the other 200 villages, the study population was not made aware of DFS despite the same sales programme being implemented.

Disappointing results

They then reported that both the sales and free experiments resulted in higher DFS consumption, especially among those who received it for free - they only stopped consuming it when they had run out of their supply. However, among those who had to buy it, intake fell over time, with many having tried the product at least once but not continuing with it.

The researchers wrote: This suggests that the product does not have a slow diffusion curve that would eventually culminate in large adoption. They added that they found no evidence that either selling DFS or providing it for free has an economically meaningful or statistically significant impact on



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haemoglobin, anaemia, physical health, cognition or mental health, though there was a relatively small increase in haemoglobin among adolescents. These disappointing results are explained both by modest purchases and low impact of DS for the majority of the population, even when consumed somewhat regularly.

Anaemia dilemma

They stated that though the results were seen in only one setting and should be replicated, they did not provide positive prospects for DFS in terms of fighting anaemia in rural populations. They concluded: The issue with fortification may be that to make a notable difference for most people sufficient to perhaps sustain their interest in the product, the iron dose must be larger. But to be safe and avoid poisoning due to over-consumption of iron, the concentration of iron supplementation in food must be limited. With a single source of fortified food, and a diet that continues to be low in iron, supplementation is perhaps insufficient to make enough of a difference for individuals to be willing to continue with the programme. This of course further reduces impact, and ultimately makes the strategy non-viable.

Mung bean benefits: Protein protects against effects of high-fat diet

By Gary Scattergood 30-May-2018
NutraIngredients Asia

Consumption of mung bean protein protects against weight gain and fat accumulation caused by a high-fat diet, thanks to its positive impact on the gut microbiota.

That's the headline finding from researchers in Japan who undertook a study on rodents to try and understand the mechanisms behind its benefits. They pointed out that mung bean protein isolate (MPI) is mainly composed of 8S globulins, which exhibit similarities to β -conglycinin, a major component of soybean protein. Many physiologically beneficial effects of β -conglycinin have been reported, including reduced food intake, body weight, body fat, insulin resistance, plasma and liver lipids, plasma glucose, and lipogenesis. Similarly, MPI has also been indicated to suppress hepatic lipogenesis in rodent models and reduce fasting plasma glucose and insulin levels in obese adults.

However, the effects of MPI on mitigating high-fat diet HFD-induced obesity and the detailed mechanism underlying these effects remain to be elucidated. Therefore, the researchers examined the metabolic phenotype, intestinal bile acid BA pool, and gut microbiota of conventionally raised mice and among mice that were randomised to receive either a regular HFD or

HFD containing mung bean protein isolate instead of the dairy protein present in regular HFD.

Significant variations

The researchers found that replacing dairy protein with MPI in an HFD was efficacious against diet-induced weight gain, fat mass accumulation, and hepatic steatosis. They also detected significant variations in the gut microbiota between diet groups. They wrote in the Journal Biochemical and Biophysical Research Communications: "MPI intake significantly reduced HFD-induced weight gain and adipose tissue accumulation, and attenuated hepatic steatosis. "Enhancement in the secretion of intestinal glucagon-like peptide-1 (GLP-1) and an enlarged cecal and fecal BA pool of dramatically elevated secondary/primary BA ratio were observed in mice that had consumed MPI.

"These effects were abolished in GF mice, indicating that the effects were dependent upon the presence of the microbiota." The researchers added that functional alterations in the gut microbiome in response to MPI consumption warrant detailed follow-up investigation. Mung bean has become increasingly popular with plant-based protein manufacturers. Our sister title FoodNavigator-Asia recently reported on how JUST uses mung bean to make its egg-free scramble product.

FOOD SCIENCE & INDUSTRY NEWS

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How innovation is answering the challenge of food waste

By Katy Askew 11-May-2018 Food Navigator

Food waste is a significant issue up and down the supply chain. Emerging food tech innovations are stepping up to meet the challenge.

Approximately one third of the food produced in the world for human consumption every year — approximately 1.3 billion tonnes — gets lost or wasted according to the United Nations. At the same time, one in nine people globally go to bed hungry while half of all child deaths are related to malnutrition. The growing world population — forecast to reach roughly 9bn by 2050 — looks set to exacerbate the problem. With limited land and water resources, concern is mounting over whether the food system as it stands will be able to cope.

Environmental impact
More food reaches landfill and incinerates than any other waste, according to estimates from the US Environmental Protection Agency. Food waste is the third largest producer of methane gas, behind China and the USA, making it an

important contributor to global warming. Cutting food waste is moving up the agenda, John Kerry, former US Secretary of State, told the Seeds and Chips conference in Milan.

“We have to talk about every part of the food chain. Growing and raising food is only part of the challenge. We have to be better stewards of the food we have... Shame on us when it is just a management issue. “Think of the natural resources we would save — water, land, energy — if food production was more effective.”

‘We are poorly handling the food we have’
Andrew Ive, a partner at New York-based food accelerator Food X, concurs that the challenge we face is not necessarily the need to produce more food. Rather the global food system needs to produce more efficiently. “There is enough but we are poorly handling the food we have,” he suggested. “It is a matter of supply chain and distribution more than increased production.”

Ive revealed that 10-15% of start-up applicants that approach Food X are working on business models to tackle food waste and build a more sustainable system. Lucia Chierchia, managing partner at incubator Gellify, said that she too is seeing an increase in innovation

as innovators respond to the need for “a new business model”. For example, she explained: “I have seen so many innovations coming through for food freshness detection.”

Biggest gains in supply chain
Renske Lynde, co-founder and managing director of the Food System 6, insisted that answers to food waste lie in an understanding of the interdependence and interactive nature of elements in the food chain. “There is an opportunity to take a more systems based approach,” she suggested.

There are opportunities to cut food waste throughout the entire food chain, from the farm level right through to the dining table. However, while consumers account for approximately 20% of food waste, changing behaviours and consumption patterns takes time. The quick wins for food waste lie with farmers, manufacturers and retailers.

Innovation addresses weak links
At a farm level, significant amounts of fruit and vegetables are wasted because they fail to meet the aesthetic standards of supermarkets. In the UK, for instance, research from food and environment charity Feedback, found around 16% of all produce grown is wasted every year.

San Francisco-based Treasure8 views this as an important opportunity to “capture food waste and turn it into ingredients at a large scale”, founder Timothy Childs said. “We are trying to go big,” he explained. “We plan to capture food waste and turn it into ingredients at a large scale... We are focusing on where we can get reliable supplies of food waste.”

Moving up the supply chain, innovators are also focusing their efforts on how waste from the production process can be brought back into a circular economy model. Federica Zaccheria of Italian National Research Council is working to develop “technological solutions” to this problem via “chemical transformation”. Currently, two projects are in development for rice and coffee roasting chains.

In rice processing, there is potential for extracted oils for use in the production of emulsifiers, while sterols and proteins could become food additives or taste enhancers, she suggested. Likewise, fats and waxes that are by-products from coffee roasting could be used by the cosmetics industry while other waste streams can be utilised in paper production. This sees waste residues redeployed as “new resources within the circular economy model”, Zaccheria said. “Waste bio engineering is a model that can be applied to other food supply chains. It takes the finding of technological chemical solutions to valorise waste streams.”

Innovative preservation techniques that extend shelf life can also be used to cut waste. Apeel Sciences has developed a coating based on the “thin polymeric barrier” that plants evolved to protect themselves as they evolved from water- to land-based organisms.

“What we do at Apeel is find and isolate those molecules,” CEO

James Rogers explained. This is then turned into a water soluble powder-based preservative. Fruit and vegetable producers mix the powder with water and dip produce in the taste and texture neutral liquid. This process can double – or even quadruple – the shelf life of fresh produce, Rogers claimed.

Apeel’s solution is rolling out in the US and the company hopes to gain regulatory approval for European markets in the near-term. Retailers are also under pressure to reduce the amount of food they waste and Spanish start-up Wasteless believes price optimisation can help.

The group supplies software to retailers that automatically alters the price of a product based on how near its sell by date the item is. “Retail is a big area for gain,” Wasteless’s Tomas Pasqualini told us. And he believes growing awareness of the issue is making retailers more willing to think outside the box as they look for solutions.

“Food waste is a trendy topic. It is not only about cost [to the supermarket operator] but also about the environment. Tests with our system show a 30% reduction in food waste and increased sales, optimising the supermarket operation.” Wasteless’s technology has been rolled out in a pilot programme with Spanish supermarket Dia across 30 SKUs. The retailer is currently in discussions about scaling up.

Personalisation, online expansion and unmanned outlets: The future of food retail in Asia?

By Lester Wan 21-May-2018 Food Navigator Asia

More personalised formats, a growing number of unmanned outlets, and soaring online sales are set to be key features of Asia’s food retail landscape, according to a regional expert.

Chayadi Karim, research analyst at Euromonitor International, said grocery stores continue to reduce in size as consumer analytics and shopper data will lead to more purposeful or targeted product supply decisions, catering to specific audience groups. Hence, this would reduce the need to have large stores or outlets supplying everything under the sun. Furthermore, unmanned stores and shopper personalisation are the next big things’ in the grocery retailing space. “Other than the fact that it helps grocery retailers reap huge savings in labour costs, it also plays very well to the convenience’ factor that is so desired by many Asian consumers,” said Karim.

Growth and decline
Euromonitor data shows, for convenience stores, supermarkets and hypermarkets in Singapore, the respective retail values in 2012 across Asia Pacific were US\$ 151,271.9m, US\$ 539,760.5m and US\$ 139,490.9m. In 2017, they were US\$ 152,040.9m, US\$ 556,267m, and US\$ 153,828m.

In Asia Pacific, overall, convenience stores have increased in retail value by nearly US\$ 770m (0.5%). Supermarkets grew US\$ 16,506.5m (3%), and hypermarkets grew US\$ 14,337.1m (10.3%), over the period.

Image © iStock.com/pixelfusion3d



Despite the apparent statistical growth in Singapore and Asia Pacific, many supermarkets in South East Asia especially have been struggling with poor sales. Stores that have been shut down include some of pan-Asian retailer Dairy Farm International's Cold Storage, Giant and Hero outlets in South East Asia.

Group chief executive Ian McLeod had said, in Malaysia, consumer spending has generally been weak, while they have seen emerging competition from independent discount retailers and e-commerce in Singapore. In Asia Pacific the truly significant growth was in hypermarkets, but Karim said this didn't spell doom and gloom for convenience stores. "Our data shows that, across Asia, these formats are still growing and prove to be an essential fixture for many Asian consumers," he said. "However, would admit that these retailing formats have significant challenges ahead of them."

Weathering the storm

Karim said, the singular common challenge for all these grocery retailing formats across Asia is the rising popularity of online grocery retailing. He said there are three main reasons for this growing trend. "The increasingly mobile-connected Asian consumers, a relatively barrier-less industry, and the huge value Asian consumers place on convenience - these factors are especially prevalent in large Asian countries such as China and Indonesia, and it is also where we see the highest growths in online grocery retailing," said Karim.

"The convenience store concept might face stiff competition as more Asian consumers shop for more categories of goods online, but it definitely is a retailing format that will prove relevant in Asian countries." According to Karim, convenience stores are also test-beds for grocery and online companies to

try out novel retailing formats, such as unmanned stores, or new technologies such as shopper personalisation through the use of consumer data and analytics - something that is increasingly growing in retail.

We also recently reported, grocery and retail research group IGD said convenience stores will be the fastest-growing bricks and mortar channel in Asia, overall, in the next five years. This comes on the back of retailers expanding their networks and shoppers changing their purchasing habits, and retailers catering to that. IGD said Asia's leading convenience retailers are predicted to grow at a rate of 6.6% per year up to 2022.

Plant-based tuna and eel to be launched in South East Asia soon

By Tingminkoe 23-May-2018 Food Navigator Asia

Japanese food wholesaler Nishimoto is planning to launch plant-based tuna and eel in South East Asia and Europe. Named Ahimi and Unami, the plant-based tuna and eel are created by New York based company Ocean Hugger Foods.

As the world's first plant-based tuna, Ahimi gained widespread media attention for enabling vegetarians to have a taste of raw tuna sushi when it was introduced last year. It is made from tomatoes, non-GMO soy sauce, filtered water, sugar and sesame oil. Besides sushi, Ahimi can be included in poke, quinoa, wraps, grain bowls and salads. On the other hand, Unami, an eggplant-based eel alternative, is still in the works, and will be launched later this year. They are aiming for 200

million yen (USD 1.82 million) sales of it in the first fiscal year, and expect the number to rise to 1.5 billion yen (USD 13.5 million) within a few years.

Some industry players, especially supermarkets, have already expressed interest to sell Ahimi, distributed by Nishimoto. To keep the cost competitive, the company is also in discussion to build a factory in Thailand and Turkey to facilitate transportation to sales points in the region. They currently have manufacturing plants in Mexico. This is not the first time that Nishimoto is selling plant-based fish products in South East Asia.

Previously, the company partnered Malaysia's supermarket chain AEON to sell Konnyaku am vegan fish. "Usually the Japanese Food trend will start from Japan or US, and the other markets are likely to try the same trends within a few years," said Takeshi Tom Kato, international business planning manager of NTC Wismettac Singapore Pte Ltd (Nishimoto Group).

Ahimi in the US

Ahimi was introduced to the US consumers last year, and is available in supermarkets sushi counters. An Ahimi California Roll costs USD 8.99, while an Ahimi Sushi Combo costs USD 11.99. Ahimi is already certified Kosher according to Ocean Hugger Foods. The firm is also expanding its range of plant-based fish products. Besides Unami, Sakimi, a carrot-based salmon alternative, will also be launched this year.

Image © oceanhuggerfoods.com



Growing market

As of last year, the US is the fastest growing market for meat substitute products. Sales of plant-based meats had risen 6% year-on-year, according to data from Nielsen, the Plant Based Foods Association and The Good Food Institute. Besides the US, there is also increased interest from other western countries, such as the UK and Germany. Value sales for meat substitute was nearly USD 400 million in the UK and over USD 200 million in Germany in year 2016.

On the other hand, Denmark had the highest CAGR growth, standing at 24% from 2016 to 2021. There are also more start-ups focusing on development of plant based meat and seafood to meet growing demand. Other firms have also looked into the lab to culture animal cells for consumption. Currently, a range of plant-based or lab-based products have been produced, including alternatives of beef, pork, chicken, tuna, salmon, shrimp and crab.

Skip the cartoons and lectures when teaching kids to eat healthily, advise teenage entrepreneurs

By Elizabeth Crawford 09-May-2018 - Food Navigator USA

Manufacturers and public health advocates hoping to inspire children to eat more healthily will have better luck if they partner with kids to deliver the message rather than adults who could be perceived as talking down to the target audience, delegates were told at The

Partnership for a Healthier America Summit in Washington, DC.

“Underestimating kids is something we have done as a society for a long time, but we need to realise that this is the smartest generation we have had in a long time. These kids are learning C++, Mandarin and Arabic if you have a problem with your phone,” chances are you’ll hand it to someone younger to fix, Tanya Steel, founder of consultancy Cooking Up Big Dreams, told attendees. As a result, she said, “we have done a lot of dumbing down of messages that we don’t need to,” and the result can be alienating those who companies and public health advocates are trying to reach or causing them to turn away disdainfully and distrustfully.

A more effective way to reach children is by giving them the tools to deliver messages about healthy eating and nutrition to each other, she said. “Don’t underestimate us,” Amber Kelly, the 15-year-old CEO of the YouTube channel Cook with Amber, confirmed at the conference. “We can do a pretty good job” She explained that while everyone in kids’ lives impact their decisions, the biggest impact on children come from kids like her and the other entrepreneurs and public health advocates under the age of 18 on stage with her at the PHA Summit.

“There is this whole idea of well, if he can do it, I can do it, or if she is doing it, I can do it, too, because I am a kid just like them,” she explained. She also underscored a foundational truth the most marketers know but often forget when it comes to targeting kids: “When you are spreading a message, no matter what it is, you want to make it relatable.” And who better to relate to than another kid?

Engage kids in hands on learning

Marketers and public health advocates also will more likely get their message across if they do so in a “fun and engaging way that truly makes and impact,” Haile Thomas, the 17-year-old CEO of the Happy Organization, told attendees.

“What we do with my non-profit at summer camps is we present kids with the opportunity to use real knives and real stoves and create with different spices and try different ingredients” so that they experience firsthand that “healthy eating doesn’t have to be boring spinach that is just sitting there on a plate”

She also recommends that marketers show children how making healthy dietary choices can allow them to do something else they love. “Ultimately, we are not going to be our best if we are not feeding our bodies the best foods So showing them that and how following a healthy diet can propel you to have the energy and vitality to go forward toward your dreams and goals” is powerful, she said.

Social media is key

As for how best to deliver these messages – social media was the resounding recommendation from the panel of children. “Nowadays, everyone is always on their phone you know, my phone is sitting right over there if you are going to be on the phone all the time, why not see those messages there” Kelley said. She noted that she follows on Instagram people who have creative recipes and beautiful food photos, but there are also “many cool ripped people if you want to be inspired by that” and are more into fitness.

“YouTube is great as well that think is so great about YouTube is it is short and gets to the point you don’t have to watch this huge drawn out TV show or whatever. And no matter what you are looking for,” you can find it because there are so many people using it to communicate, she said.



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Sujeet_Govindaraj

An Instagram post, video or even a Tweet also allows manufacturers to reach more people quickly, added Thomas.

However, she cautioned, to be effective the message – not just the means of delivering it -- needs to be modern. For example, she said, while cartoons might have worked for young children in the past, Thomas said, “there are some 8-year-olds who are just not into that stuff. They want memes or something more sophisticated. So, I think, just adjusting to the times and the sophistication potential will help children absorb this information and acknowledge it”

‘There is a mega-trend around fermentation’: The rising star of fermented foods

By Katy skew 08-May-2018 Dairy Reporter

Fermentation is making a ‘comeback’ in western markets, with growing demand supported by consumer perceptions of it as a ‘natural’ and ‘healthy’ food preservation method.

Fermentation refers to an anaerobic process involving the application of natural bacteria feeding on the starch and sugar present in the food to produce lactic acid. This helps preserve the food and extend shelf life.

The intersection of two mega-trends

Fermented foods sit at the intersection of two mega-trends that are coming to define consumption patterns in Europe: the demand for

natural products that deliver added health benefits. Because fermentation is a natural process it delivers on consumer expectations around clean labelling and a desire to avoid synthetic additives and preservatives. According to a survey commissioned by specialist PR group Ingredient Communications last year, 73% of consumers said they are willing to pay a higher retail price for products made with ingredients they recognise and trust.

Fermentation also carries health-related benefits. Fermented foods contain necessary enzymes, omega-3 fatty acids, probiotics and vitamin B. Across various categories from ambient vegetables to health drinks and dairy products fermented foods have come to be associated with positive digestive health. “Growing consumer awareness about the link between ‘gut health’ and overall

health and wellness is a major factor driving the renewed focus on fermented foods,” Bobby Verghese, a consumer markets analyst at GlobalData, noted.

DuPont Nutrition & Health global marketing strategy leader, cultures and dairy probiotics, Didier Carcano concurred. “There is a mega-trend around the positive image of fermentation and fermented food and beverage products,” Carcano told FoodNavigator. “Fermentation is a natural way of processing food and adding health benefits to it. Consumers are increasingly looking for this, moving toward food products that are naturally processed.”

Youthful consumers seeking novel tastes

Fermentation also appeals to millennial consumers, who are seeking out novel taste and texture experiences and international cuisines, Global Data analysts suggested. A survey from the research group found 49% of millennial and gen Z consumers like to experiment with “new and unusual flavours”. Fermentation is a popular food preparation method in African and Asian cultures. And increasingly European consumers are experimenting with the exotic flavours found in Korean Kimchi or cultured drinks like Kombucha and Lassi, which have been long-popular with consumers in China and India.

Innovation opportunity

Fermentation is most commonly used in the dairy aisle in Europe. But, with growing demand for plant-based options and an increased uptake of flexitarian diets, Carcano suggested that the greatest potential for future growth in fermented products lies in less developed areas. “Future growth lies first with alternatives to yogurt and to fermented milk drink. One can also expect increase demand for a variety of fermented fruit juices, protein and cereals based juices.” In order to help food makers meet this need, DuPont is launching DaniscoVege Cultures, a new portfolio of cultures specially formulated for the plant-based fermented products market.

Fermentation also offers fish and meat producers a method for attaining clean label certification for their products without using harmful synthetic preservatives, Global Data analysts noted. “The growing popularity of fermented foods implies the need for innovative and creative packaging formats that preserve the integrity of the live probiotic culture in the foodstuff, without sacrificing the convenience and aesthetics aspects.”



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REGULATORY NEWS

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WHO calls for elimination of trans fat in foods by 2023

IFT Weekly May 16, 2018

The World Health Organization (WHO) has released a step-by-step guide—called REPLACE—to eliminate industrially produced trans-fatty acids from the global food supply.

WHO estimates that every year trans fat intake leads to more than 500,000 deaths of people from cardiovascular disease. Industrially produced trans fats are contained in hardened vegetable fats, such as margarine and ghee, and are often present in snack food, baked foods, and fried foods.

“WHO calls on governments to use the REPLACE action package to eliminate industrially produced trans-fatty acids from the food supply,” said Tedros Adhanom Ghebreyesus, WHO director-general.

“Implementing the six strategic actions in the REPLACE package will help achieve the elimination of trans fat, and represent a major victory in the global fight against

cardiovascular disease.”

REPLACE provides six strategic actions to ensure the prompt, complete, and sustained elimination of industrially produced trans fats from the food supply:

- REVIEW dietary sources of industrially produced trans fats and the landscape for required policy change.
- Promote the replacement of industrially produced trans fats with healthier fats and oils.
- Legislate or enact regulatory actions to eliminate industrially produced trans fats.
- Assess and monitor trans fats content in the food supply and changes in trans fat consumption in the population.
- Create awareness of the negative health impact of trans fats among policy makers, producers, suppliers, and the public.
- Enforce compliance of policies and regulations.

Several countries have virtually eliminated industrially produced trans fats through legally imposed limits on the amount that can be contained in packaged food. In Denmark, the first country to mandate restrictions on industrially

produced trans fats, the trans fat content of food products declined dramatically and cardiovascular disease deaths declined more quickly than in comparable Organization for Economic Cooperation and Development (OECD) countries. Action is needed in low- and middle-income countries, where controls of use of industrially produced trans fats are often weaker, to ensure that the benefits are felt equally around the world.

Elimination of industrially produced trans fats from the global food supply has been identified as one of the priority targets of WHO’s strategic plan, the draft 13th General Program of Work (GPW13), which will guide the work of the organization from 2019 to 2023. GPW13 is on the agenda of the 71st World Health Assembly that will be held in Geneva on May 21–26. As part of the United Nation’s Sustainable Development Goals, the global community has committed to reducing premature death from noncommunicable diseases by one-third by 2030. Global elimination of industrially produced trans fats can help achieve this goal.



U.S. FDA approves Golden Rice

IFT Weekly May 30, 2018

GR2E Golden Rice, a provitamin-A biofortified rice variety, has completed its third positive food safety evaluation, this time from the U.S. Food and Drug Administration (FDA). In an official response received by the International Rice Research Institute (IRRI), the FDA concurred with IRRI's assessment regarding the safety and nutrition of Golden Rice.

The FDA statement comes on the heels of the safety and nutrition approvals from Food Standards Australia New Zealand (FSANZ) and Health Canada in February 2018 and March 2018, respectively.

These three national regulatory agencies carry out their assessments based on concepts and principles developed over more than two decades by international organizations such as the World Health Organization (WHO), the Food and Agriculture Organization (FAO) of the United Nations, the Organization for Economic Co-operation and Development (OECD), and the Codex Alimentarius Commission.

Once Golden Rice receives all necessary national approvals, a sustainable deployment program

will ensure that Golden Rice is acceptable and accessible to its target communities.

“Each regulatory application that Golden Rice completes with national

regulatory agencies takes us one step closer to bringing Golden Rice to the people who need it the most,” said IRRI Director General Matthew Morell. “The rigorous safety standards observed by the FDA and other agencies provide a model for decision-making in all countries wishing to reap the benefits of Golden Rice.”

Vitamin A deficiency remains a pervasive public health problem worldwide. Golden Rice is intended as a complementary, food-based solution to existing nutritional interventions, such as diet diversification and oral supplementation. It achieves this by providing 30%–50% of the estimated average requirement for vitamin A of women and children.

India's FSSAI to finalise on-pack traffic-light labelling regulations

By Lester Wan 28-May-2018 Food Navigator Asia

The Food Safety and Standards Authority of India SS plans to finalise its food labelling and display regulations

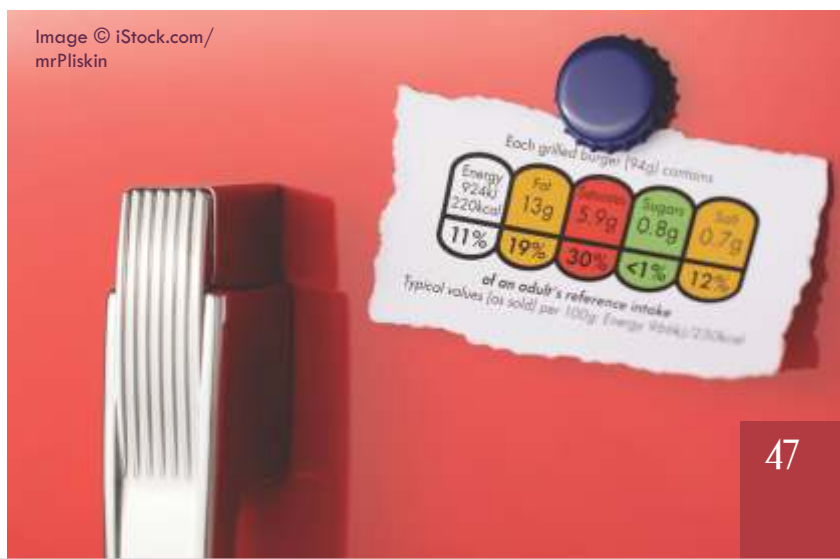
for packaged food products including proposed traffic light labelling for high fat, sugar and salt SS foods within the next two to three months.

However, FSSAI CEO Pawan Kumar Agarwal said the Authority is still open to making changes to the draft that was published in early April. Comments and feedback from stakeholders will be taken until early next month.

Significantly, the new regulations would make it mandatory for HFSS foods to have a red warning for consumers on the front of pack. The draft regulations also state that packaged food manufacturers and firms are required to declare nutritional information such as calories energy, total fat, trans-fat, total sugar and salt per serve, as well as per serve percentage contribution to the recommended dietary allowance RDA.

A green triangle or brown circle would further indicate whether it is vegetarian or non-vegetarian food. Agarwal also reiterated what was stated in the draft that, for the first time, packaged food items with 5% or more of genetically-modified (GM) ingredients must have it indicated on the pack label. He said this would help to “bring clarity”. “Imported GM food is coming to India. It is in the form of soya products and edible oils. In the case of oils, traces of GM are negligible. So, there will be no labelling,” he said.

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According to The Telegraph, the Coalition for a GM-Free India has opposed this measure, highlighting that GM foods are still not permitted in the country. The activists campaigning against GM crops entering India warned that it allows for M foods to come into the food supply chain and on shop shelves, with a simple labelling proviso being fulfilled, when it is illegal to sell M foods in the first instance.

Studying other models

Agarwal acknowledged that some food businesses have raised concerns about the “thresholds” and red labels for HFSS foods. He said the Authority has been studying the different traffic light labelling models used in other countries such as Australia, New Zealand, Mexico and the US, and will continue to seek comments and views from stakeholders before the regulations are finalised.

Such a labelling measure introduced to Western Australian schools has been shown to have a positive impact, especially in the food on offer. The FSSAI issued the draft Food Safety and Standards Labelling and Display Regulations, 2018 last month.

Trans-fat free by 2022

Agarwal also announced that the FSSAI is targeting to make India trans-fat free by 2022, the 75th year of Indian independence. The World Health Organization WHO had called for a trans-fat ban by 2023. A notice calling for “suggestions, views, comments, etc.” from stakeholders on the Draft Notification relating to Fats, Oils and Fat Emulsions was uploaded to its site on May 1.

The FSSAI has also just launched an initiative to promote safe and

nutritious food SNF at the workplace to combat alarming increases in obesity and Non-Communicable Diseases NCDs such as diabetes and hypertension. A framework of FSSAI-trained resource persons, health and wellness coordinators and food safety supervisors for each workplace is also being set up.

Mandatory colour differentiation for non-edible ice in India from June

By Lester Wan 21-May-2018 Food Navigator Asia

The Food Safety and Standards Authority of India (FSSAI) has issued a new colouring directive to differentiate between edible and non-edible ice. The order has gone out to all Commissioners of Food Safety of all states and union territories in India, all Central Licensing Authorities in the country and all food business operators.

The FSSAI highlighted that the use of non-edible ice, made from non-potable water, is a health hazard if consumed. “Similarly the incorrect use of non-edible ice for preservation or storage or transportation of perishable food commodities may lead to contamination of such food commodities,” said the authority. The FSSAI stated that in the absence of visible distinction between edible ice and non-edible ice, non-edible ice has been “diverted and consumed”.

New colour bar

From now on, a food colour — either Indigo Carmine or Brilliant Blue up to 10ppm — must be used in the production of non-edible ice, including non-edible ice blocks coming into contact with food products during the preservation, storage or transportation of perishable food commodities, to give them a bluish look or appearance “so as to enable clear differentiation with edible ice, which must remain colourless”.

“All business operators engaged in the production or use of edible or non-edible ice must ensure visible distinction between edible and non-edible ice by using food colour as mentioned above in non-edible ice with effect 1 June 2018,” said Garima Singh, director of regulatory compliance at FSSAI.

Development of legislation

The authority had previously prescribed the safety standards of edible ice in Regulation 2.7.5 of the Food Safety and Standards (Food Product Standards and Food Additives) Regulations, 2011. Singh stated: “Food Safety Commissioners of states or union territories are requested to enhance surveillance or enforcement on the sale of non-edible ice so as to ensure compliance of this directive.”

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