



PFNDAI

FOOD, NUTRITION & SAFETY MAGAZINE

BULLETIN MAY 2021

WHEY PROTEIN IN THE TIMES OF COVID-19

Ms Joanie Zhang

DIET IN DIABETES SIMPLIFIED

Ms Sheryl Salis

IMPACT OF ADVERTISING & CLAIMS ON THE BUYING CHOICES OF CONSUMERS

Mr Zafar Khan

ASHWAGANDHA - THE MOST TRUSTED AYURVEDA OF ALL TIME

Ms Abir Ansari

THE SPICE AND ZING OF CHILI PEPPERS

Ms Girija Damle

PROTEIN FOODS AND
NUTRITION DEVELOPMENT
ASSOCIATION OF INDIA

2nd Floor, Mahalaxmi Chambers, 22 Bhulabhai Desai Rd., Mumbai - 26 (India)

Phone: 022 23538858 / 23519014

Email: pfndai@pfndai.org Website: www.pfndai.org



FIBER UP YOUR WORLD!

.....
Natural Anticaking – E Number free

www.jrsfood.net



Follow the Fiber People!

RETENMAIER INDIA
PVT LTD



Fibers designed
by Nature

A Member of the JRS Group

RETENMAIER INDIA PVT. LTD.
816, Lodha Supremus-II, Road No. 22,
Wagle Estate, Thane (W) - Mumbai 400 604
Maharashtra - India

Contact:
meeta.raheja@jrsindia.com
rasika.nachane@jrsindia.com
Telephone- 022- 4024 3817-21
www.jrs.de

*taste stimulate the secretion of digestive juices
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*



*We work intimately with the nature in creating unique, innovative
functional flavour systems that excite the palate - taste and create new
sensations to all processed foods and beverages that goes a long way in
market success and creating brand value.....*

FOOD INGREDIENT SPECIALITIES PRIVATE LIMITED
No. 90, Vanagaram - Ambattur Road, Ayanambakkam,
Chennai - 600 095, India



THIS IS PLANT-BASED FOR THE MASS-MARKET

Plant-based is right on the verge of going mainstream.

But getting there is about far more than making a tasty product. It's about knowing what consumers want before they do. It's about delivering on the promise of a healthier diet. It's about creating a food system that's better for consumers and better for the planet.

And it's about a product that tastes so good it makes mouths water and stomachs rumble. That's what IFF is all about. Tailored solutions and services that help our partners keep ahead of consumer demand. Are you ready to take plant-based mainstream?

Visit www.iff.com/portfolio/markets/food for more

Planit
Danisco Planit™
now part of IFF



EDITORIAL BOARD

Dr. Bhajekar Deepa, Dr. Gupte Swati, Dr. Holla K.S.,
Dr. Shirhatti Vilas, Mrs. Madhavi Trivedi, Dr. Udipi Shobha,
Dr. J.I. Lewis, Dr. Jagmeet Madan & Dr. V. Krishnakumar

INDEX

COVER STORY 4



ADVERTISERS

JRS India,
Food Ingredient Specialities,
IFF,
Agropur,
AAK Kamani,
Vasta Biotech,
Bee Pharms Labs,
Hexagon Nutrition,
Fine Organic Industries Ltd,
Samyog Health Foods,
Mondelez &
Roquette

Editorial	2
Whey Protein in the Times of COVID-19	4
By Ms Joanie Zhang	
Diet in Diabetes Simplified	10
By Ms. Sheryl Salis	
Impact of Advertising & Claims on the	18
Buying Choices of Consumers	
By Mr. Zafar Khan	
Ashwagandha - The Most Trusted	22
Ayurveda of All Time	
By Ms Abir Ansari	
Coming Events	24
The Spice and Zing of Chili Peppers	25
By Ms. Girija Damle	
Webinar Report: Crack the shell-	27
The Incredible Eggs-cellent	
By Ms Girija Damle	
Report of PFNDAI Regulatory Webinar on	31
'Various Regulation Amendments	
By Ms Anuja Padte	
Report of Nutrition Awareness Activity	34
with Juhu Municipal School	
By Ms Anuja Padte	
Regulatory Round Up	37
Research in Health & Nutrition	38
Food Science and Industry News	46
Regulatory News	53

GOVERNING BOARD

ELECTED MEMBERS:

Mr Arijit Mazumder - Mondelez
Dr Bhavna Sharma - ITC
Mr Clifford Pinto - Roquette
Mr Dheeraj Talreja - AAK
Mr Indranil Chatterjee - Dupont
Dr Prabodh Halde - Marico
Mr Rohit Raut - JRS Rettenmaier
Mr K R Venkatadri - Tata Chemicals
Mr Vinay Kumar - Amway

CHAIRPERSON: Dr Shatadru Sengupta, Hardcastle Restaurants

VICE CHAIRPERSON: Mr Nikhil Kamat, Fine Organics

HON TREASURER: Ms. Anshu Gupta, General Mills

ADVISOR: Dr. B. Sesikeran, Chairman, Scientific Advisory Committee, PFNDAI

CO-OPTED MEMBERS:

Mr Shaminder Pal Singh, PepsiCo
Mr Prashant Bhat, Mother Dairy
Ms Rini Sanyal, Herbalife
Ms Richa Mattu, HUL
Mr Manish Singh, Fonterra Future Dairy
Mr Yogesh Vaidya, Britannia

CO-OPTED PAST CHAIRMEN:

Dr Vilas Adhikari (Ex- DSM)
Dr. Joseph Lewis (Ex-Marico)
Mr R.D. Shenoy (Ex-Cadbury)
Mr. JA Sakhavalkar (Ex-Sandoz)
Dr. GM Tewari (Ex-Coca Cola)
Mr Bhupinder Singh (Vista
Processed Foods)



EDITORIAL

The recent scenario of pandemic can teach us a few things.

The lack of awareness of safety is without any boundary of caste, creed, race, religion, or socio-economic class and is present everywhere. People have not only shown ignorance but hatred and even considered it cowardly. There have been arguments and fights over the enforcement of wearing masks, sometimes going to such extent as to put staunch followers of a former president of the USA to shame.

Only after the second and more deadly wave of Covid-19 descended upon us, people got scared and started using the masks and social distancing. It probably was more out of fear than the realisation that safety is the primary weapon in the war against pandemic that people started following this.

Even the politicians and governments had to be warned by the courts about the seriousness of the situation. That shows not only the lack of awareness but also the lack of respect that is shown for safety. This has to change if further pandemics and epidemics are to be avoided or minimised in severity and cost to the society.

Second problem was both creating awareness and enforcement vigour was lacking on part of governments. Each government as well as local authority was coming up with guidelines and only announcing on media without repeatedly trying to make people understand and follow. This left the interpretation to various media and WhatsApp groups which added their own flavour to it making such cacophony of information that people not only got confused but started losing faith in the scientific information that was being provided.

People would not follow rules and guidelines as authorities did not bother much about the enforcement, which led to further disregard for them.

We hope that these lessons are learned by everyone not just laypersons and governments and local authorities but also experts and professionals who deal with safety of all kinds in their profession.

We need to create awareness about safety in such terms that everyone understands why and how. This awareness should be in simple terms and easy to understand. Once people understand then implementation is easier.

Secondly, enforcement is the key to success of any rule and guideline. When people realise that these rules are being enforced then there is trend to follow them and respect them even though they may not like them or approve of them.

Enforcement need not be with checking 100%, which is impossible but random with sufficient regularity to send the message that enforcement is being done. This will create a sense of concern of being caught and censured.

We hope to escape this phase and further phases of Covid-19 with minimal further damage to human life and economy. However, certainly we can carry the message from this further in our lives about safety. It is even more relevant when one's lack of concerns for safety affects others as in the case of Covid-19 as well as in the case of food preparation. We hope everyone takes proper precaution and remain safe.

Prof Jagadish Pai,
Executive Director,
PFNDAI

Veg DHA Omega-3 Throughout the Life Cycle



100% Veg
DHA
Powders
& Oils

life's DHA™ – Veg DHA Omega-3

Health and wellness throughout life

life's DHA™ Supports:

- A healthy pregnancy in mothers to be
- Brain and eye development for foetuses, infants and children
- Cardiovascular health in adults
- Mental health in senior citizens



Also from Vasta:

Lactoferrin for ID/IDA and for immune health;

Nucleotides for infant nutrition; **Phosphatidylserine** for cognition; **Taurine** for alertness and energy;

Nisin & Natamycin for shelf life extension; **Folic Acid** for well being... and many other ingredients!



Vasta Biotech Pvt. Ltd.

M: +91 98416 03903

T: +91 44 24993095 • F: +91 44 24991007

vasta@vastabiotech.com • www.vastabiotech.com

WHEY PROTEIN IN THE TIMES OF COVID-19



AUTHOR

Ms. Joanie Zhang

M.Sc., CFS

Technical Support Scientist

Agropur US Operations

Minnesota, USA

The novel corona virus disease, COVID-19, has led to severe illnesses and deaths throughout the world since its discovery in Dec. 2019. It has long been established that consuming adequate protein is critical for immune function, and therefore it is a priority as COVID-19 infections continue to sweep through our communities. Whey protein is a complete protein containing all the essential amino acids that our bodies need, and is quickly digested and absorbed. Components of whey protein have proven antiviral properties, which promote immunity and can help to alleviate the severity of symptoms in cases of infection. It is also a convenient solution. Just one serving of high-quality whey protein contains almost half of a healthy adult's daily protein needs.

Last year, the COVID-19 Task Force of the American Nutrition Association posted a review for health professionals on personalized nutrition during the COVID-19 era, noting: "Adequate protein is critical for immune function (<https://theana.org/COVID-19>). Undenatured whey protein can also promote immune health by the action of naturally present compounds such as lactoferrin, which has antioxidant and antiviral properties. It has been shown to bind to viral receptor sites and inhibit in vitro growth of some viruses, and may, therefore, help to alleviate symptom severity or complications from viral infections. One serving (around 25-30g) of high-quality whey protein contains almost half of a healthy adult's protein needs. In addition, whey protein can be stored dry and can last several weeks, making it a great

functional bulk food option. To be noted, some essential amino acids are absent from plant foods, so those who avoid meat may need supplementation as may the elderly, who are particularly at risk for protein malnutrition."

Meanwhile, ESPEN (European Society for Clinical Nutrition and Metabolism) issued an expert statement and practical guidance for nutritional management of individuals with COVID-19 infection (11) that emphasized protein needs in formula:

- 1 g protein/kg body weight/day in older persons: the amount should be individually adjusted to nutritional status, physical activity level, disease status and tolerance
- = 1 g protein per kg body weight and day in polymorbid medical inpatients in order to prevent body weight loss, reduce the risk of

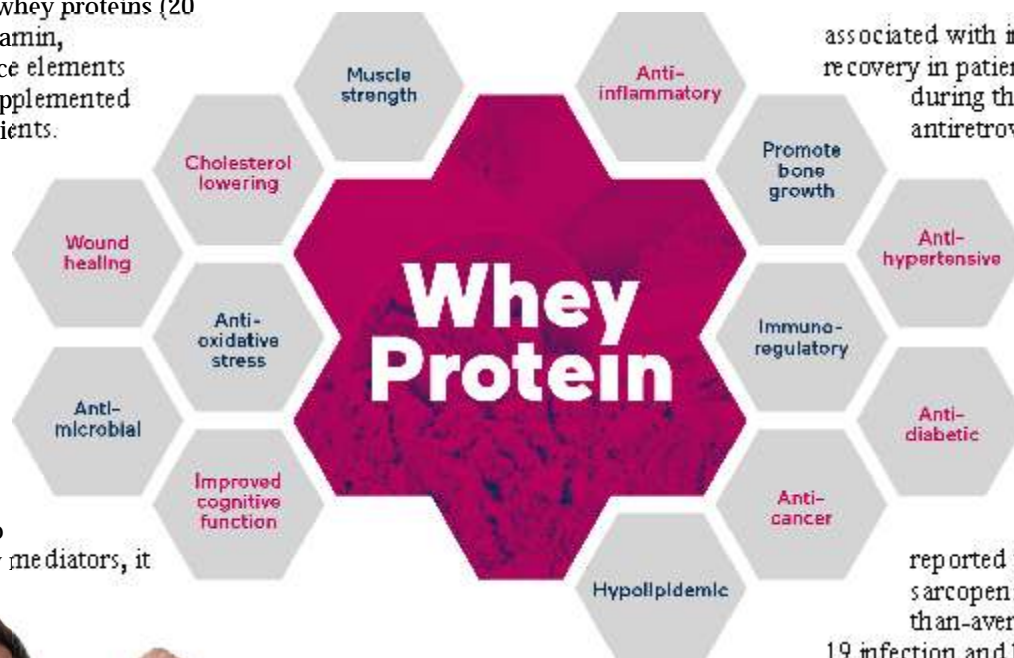
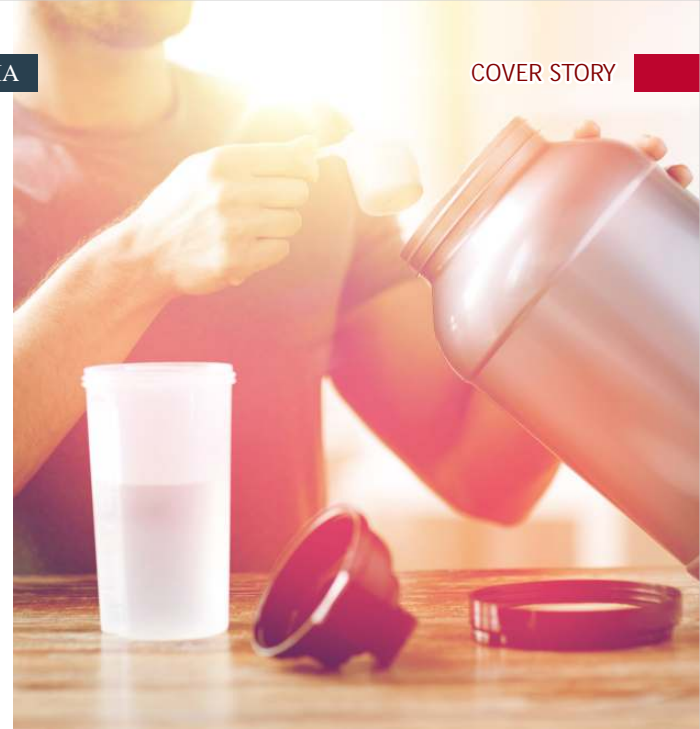
complications and hospital readmission and improve functional outcome

- During critical illness at ventilated period, 1.3 g/kg protein equivalents per day can be delivered progressively. This target has been shown to improve survival mainly in frail patients.

Whey protein has been successfully used in nutrition management for COVID-19 patients.

In the published, shared pragmatic protocol for “Early nutritional supplementation in non-critically ill patients hospitalized for the COVID-19” (1), whey proteins (20 g/d) and multivitamin, multimineral, trace elements solutions were supplemented to COVID-19 patients. Another 2020 published report (10) about medical nutrition therapy for critically ill patients with COVID-19 highlighted the importance of protein nutrition: to reduce the catabolism due to the inflammatory mediators, it

indicated to increase protein supply as top priority. It is recommended that the protein consumption be increased to 1.3 g/kg/day, thus increasing the supply of branched chain amino acids (BCAAs) to 50%. This increased BCAA supply prevents muscle loss and enhances the strength of respiratory muscles. For ICU patients in the presence of



associated with improved immune recovery in patients with HIV during the first 3 months of antiretroviral treatment (8).

Sarcopenia and COVID 19 COVID-19 is also constraining many people to a sedentary lifestyle. Older, frail adults may be most affected (9). It is predictably

reported that patients with sarcopenia are at higher-than-average risk of COVID-

19 infection and have poorer prognosis. There would a vicious circle of interactions between sarcopenia and COVID-19 (2). Thus, interventions targeting sarcopenia are anticipated to benefit the prevention and treatment of COVID-19.

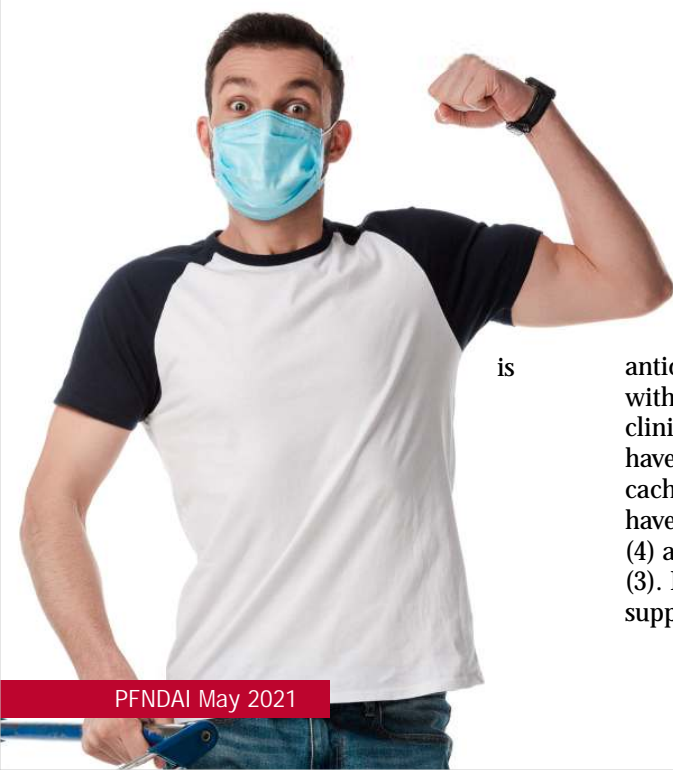
How much protein do the older adults need?

1) A balanced nutritional formula including adequate protein intake with regular physical exercise (aerobic and resistance) is recommended to prevent the development of sarcopenia and promote the community prevention of COVID-19.

gastroparesis, it is suggested to use products with hydrolyzed whey protein. (10)

In published literature (1), physicians conclude that the choice of whey proteins is based on their anabolic and antioxidant properties combined with high digestibility. The potential clinical benefits of whey proteins have been underlined in cancer cachexia (6, 7). Whey proteins also have immunomodulatory properties (4) and potential antiviral activity (3). Furthermore, whey protein supplementation has been

is



whey protein in the times of covid-19

A pure, complete protein, used in COVID-19 patients' nutrition management



AGROPUR

American Nutrition Association and whey protein



AMERICAN
NUTRITION
ASSOCIATION

One serving of high-quality whey protein contains almost half of a healthy adult's protein needs.

Undenatured whey protein can promote immune health and help alleviate symptom severity or complications from viral infections.

Adequate protein is critical for immune function.

Whey protein powder can last for several months, making it a great functional food option.

Some amino acids are absent from plant foods, so those who avoid meat may need supplementation as may the elderly, who are particularly at risk for protein malnutrition.

Source: <https://theana.org/COVID-19>

features of whey protein³⁻⁷



High quality protein source



Complete protein with all essential amino acids



Quickly digested and absorbed



Immunomodulating and anti-viral properties



Rich in branched chain amino acids (BCAAs)



Efficient in muscle protein synthesis and enhances body recovery



High in cysteine that can enhance anti-oxidation

how much protein do you need?^{2,11}

>0.8g

per kg of total body weight per day

With regular physical exercise, to help prevent the development of sarcopenia.

Extra
10-20g
per day

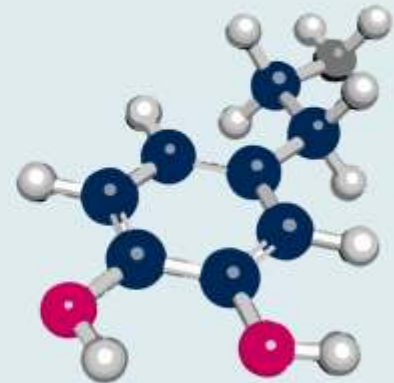
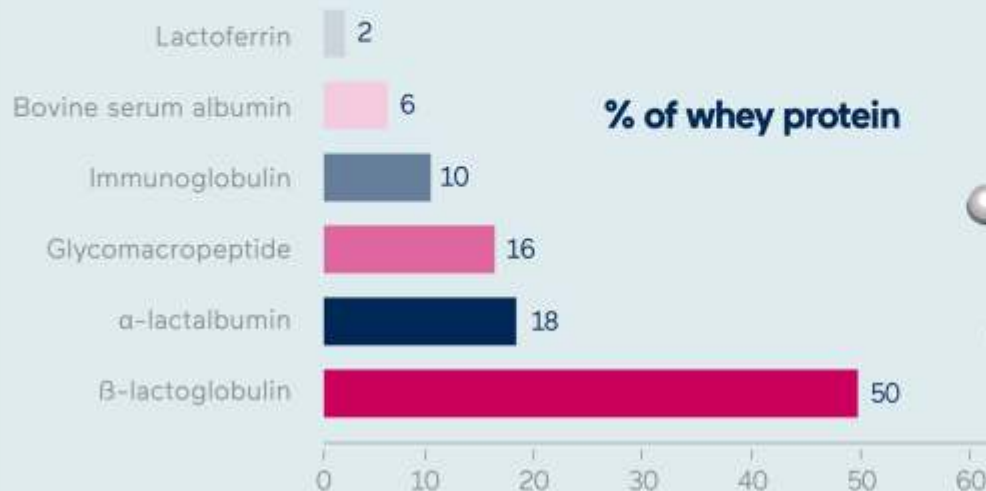
Older adults, particularly those who are inactive or have chronic diseases, should receive sarcopenia assessments during the pandemic. Those with sarcopenia warrant extra protein supplementation.

1.2-2.0g

per kg of total body weight per day

Patients with sarcopenia and COVID-19 could benefit from early introduction of high-quality protein (1.2-2.0 g/kg/d) accompanied with exercise, which promotes immune response and metabolic stress.

bioactive components in whey protein



use of whey protein in nutrition management*

based on recent publications^{1,10}



non-critically ill
patients hospitalized
with COVID-19

whey proteins (20 g/d)
+ multivitamin +
multimineral, trace
elements solutions

critically ill
patients hospitalized
with COVID-19

increase protein supply
Consume 1.3g/kg/day
to increase BCAAs

ICU patients
in the presence of
gastroparesis

suggest using products
with **hydrolyzed whey**
protein.

* Always consult with a physician before making dietary changes

? inactivity and COVID-19 which can lead to sarcopenia

COVID-19 is constraining many people to a **sedentary lifestyle**. Older, frail adults may be more affected by this condition.⁸ **Patients with sarcopenia are at higher-than-average risk of infection and have poorer prognosis**. Interventions targeting sarcopenia are anticipated to benefit the prevention and treatment of COVID-19.



high-quality whey protein

- enhances body recovery
- boosts immunity and antioxidation
- increases muscle protein synthesis⁹

Disclaimer: This is for information and education only, and not meant to position Agropur opportunistic in this unique time period. Whey protein can help boost body immunity⁴ and recovery, but doesn't mean it can prevent or cure Coronavirus. Please consult medical doctor for any treatment.

References:

1. Caccialanza, Riccardo, et al. Nutrition (2020): 110835.
2. Wang, Pei-yu, Yin Li, and Qin Wang. Nutrition 84 (2020): 111104.
3. Ng, Tzi Bun, et al. Applied microbiology and biotechnology 99.17 (2015): 6997-7008.
4. <https://www.agropur.com/us/news/whey-protein-and-immunity-giving-your-body-the-strength-to-fight>
5. Cereda, Emanuele, et al. Cancer Medicine 8.16 (2019): 6923-6932.
6. Teixeira, Filipe J., et al. Pharmacological research 144 (2019): 245-256.
7. Olsen, Mette F., et al. Bmj 348 (2014): g3187.
8. Moro, Tatiana, and Antonio Paoli. European journal of translational myology 30.2 (2020).
9. Oikawa, Sara Y., et al. The American journal of clinical nutrition 111.3 (2020): 708-718.
10. Romano, L., et al. Eur Rev Med Pharmacol Sci 24.7 (2020): 4035-4039.
11. Barazzoni, Rocco, et al. (2020): 1631-1638.

2) Older adults, especially those with inactivity, chronic diseases, cancers and nutritional deficiencies, should be targeted for sarcopenia assessment and classification during the COVID-19 pandemic. Those with sarcopenia warrant extra protein support, 10–20 g/d. supplementation with high quality protein (such as 1.6g/kg/day of whey protein) in combination with physical exercise. This may help to stimulate muscle protein synthesis and improve muscle recovery in older adults. (10)

3) Patients with sarcopenia with SARS-CoV-2 infection could benefit from early introduction of high-quality protein (1.2–2.0 g/kg/d, leucine-enriched), accompanied with subtle physical exercise, which helps promote immune response and metabolic stress.

Agropur offers a wide range of whey protein ingredients, from whey protein concentration (WPC), isolates (WPI), to hydrolyzed whey proteins (WPH) and instantized ingredients. Please contact us for more information:

Ingredients@agropur.com

***Disclaimer:** This is for information and education only, and not meant to position Agropur as opportunistic in this unique time period. Whey protein can help boost body immunity(4) and recovery but does not prevent or cure Coronavirus. Please consult a medical doctor for any treatment.

Reference:

1. Caccialanza, Riccardo, et al. "Early nutritional supplementation in non-critically ill patients hospitalized for the 2019 novel coronavirus disease (COVID-19): Rationale and feasibility of a shared pragmatic protocol." *Nutrition* (2020): 110835.
2. Wang, Pei-yu, Yin Li, and Qin Wang. "Sarcopenia: An underlying treatment target during the COVID-19 pandemic." *Nutrition* 84 (2020): 111104.
3. Ng, Tzi Bun, et al. "Antiviral activities of whey proteins." *Applied microbiology and biotechnology* 99.17 (2015): 6997-7008.
4. <https://www.agropur.com/us/news/whey-protein-and-immunity-giving-your-body-the-strength-to-fight>
5. Cereda, Emanuele, et al. "Whey protein isolate supplementation improves body composition, muscle strength, and treatment tolerance in malnourished advanced cancer patients undergoing chemotherapy." *Cancer Medicine* 8.16 (2019): 6923-6932.
6. Teixeira, Filipe J., et al. "Whey protein in cancer therapy: A narrative review." *Pharmacological research* 144 (2019): 245-256.
7. Olsen, Mette F., et al. "Effects of nutritional supplementation for HIV patients starting antiretroviral treatment: randomised controlled trial in Ethiopia." *Bmj* 348 (2014): g3187.
8. Moro, Tatiana, and Antonio Paoli. "When COVID-19 affects muscle: effects of quarantine in older adults." *European journal of translational myology* 30.2(2020).
9. Oikawa, Sara Y., et al. "Whey protein but not collagen peptides stimulate acute and longer-term muscle protein synthesis with and without resistance exercise in healthy older women: A randomized controlled trial." *The American journal of clinical nutrition* 111.3 (2020): 708-718.
10. Romano, L., et al. "Short Report-Medical nutrition therapy for critically ill patients with COVID-19." *Eur Rev Med Pharmacol Sci* 24.7 (2020): 4035-4039.
11. Barazzoni, Rocco, et al. "ESPEN expert statements and practical guidance for nutritional management of individuals with SARS-CoV-2 infection." (2020):1631-1638.





FOOD PRODUCT TESTING SERVICES

We are Govt approved testing laboratories by FDA
Our test facilities are accredited by NABL[ISO/IEC 17025:2017] & ISO certified(9001:2015) by EURO VERITAS
Our lab has been approved by FSSAI, BIS, APEDA



We Can Undertake Following Food Categories for Analysis

Products

- Dairy products
- Fruits, vegetables and its products
- Cereals, pulses and its products
- Spices, Condiments and its products
- Animal origin, fishery and its products
- Alcoholic and non alcoholic products
- Oil seed, oils and its products
- Sweets, confectionary and its products
- Bakery products
- Sugar, Honey & jaggery
- Process, canned food products
- Feeds
- Water
- Ready to eat
- Infant substitute
- Skim Milk Powder

Testing as per FSSAI requirements.

- Pesticide residues, PAH, PCB's
- Mycotoxins
- Naturally occurring toxins(NOT,s)
- Heavy metals and minerals
- Minerals & Toxic heavy metals
- Vitamins
- Antibiotics / Residues
- Food Adulteration tests
- Food additives, preservatives and artificial sweeteners
- Synthetic food colour
- Antioxidants
- Packaged Drinking analysis as per IS 14543
- Drinking water as per IS 10500
- Process water IS 4251
- Shelf life study(Ambient @ Accelerated)
- Microbiological testing (Bacterial and pathogens)
- Hygiene audit /Kitchen audit
- Allergens
- Sterol Composition

Analytical Facility

- | | |
|-------------------------------|--|
| 1) GC MS MS | 7) Ion Chromatography with CD |
| 2) LC MS MS | 8) Protein / Fat / Fibre Analyzer |
| 3) ICP MS | 9) Elisa Reader |
| 4) AAS/ GF/ Flame | 10) FT-IR |
| 5) HPLC with UV/ FLD/ RI/ PDA | 11) U V Spectrophotometer |
| 6) HS with GC FID/ TCD | 12) Partical size by Malvern (Wet & Dry) |

Bee Pharmo Labs Pvt.Ltd

C-2, Hatkesh Udyog Nagar, Mira Bhayander Road, Mira Road (East), Thane - 401107

Tel: 9029774868 to 9029774877 (10 Lines)

info@beepharmo.com | food@beepharmo.com | www.beepharmo.com

DIET IN

D I A B E T E S

SIMPLIFIED

AUTHOR

Ms. Sheryl Salis

(RD, CDE, CPT, CISSN, ND, MDHA),

Registered Dietitian and Certified Diabetes Educator,

Founder- Nurture Health Solutions

Author- *Diet in Diabetes Simplified*



India is undergoing rapid nutritional transition, resulting in excess consumption of calories, saturated fats, trans-fats, simple sugars, sodium and low intake of fibre. Such a dietary transition coupled with sedentary lifestyle have led to an increase in obesity and lifestyle-related non-communicable diseases such as Type 2 diabetes mellitus, cardiovascular disease [CVD], etc.

India is facing an impending diabetes tsunami ranking 2nd in the number of people with diabetes in the world. As per the IDF 2019 Atlas data, India has 77 million people with diabetes in the age group of 20-70 years with one in six adults with diabetes in the world

coming from India.

Based on the Indian Council of Medical Research-INDIA Diabetes (ICMR-INDIAB) study 2017 conducted in 15 states, the overall prevalence of prediabetes was 10.3% & diabetes was 7.3%.

Diabetes alone accounts for more than a million deaths each year and is predicted to affect more than 100 million lives in India by 2035.

What is even more alarming is that India leads in the number of people undiagnosed with diabetes with 43.9 million adults being unaware of their diabetes status. What was once affecting the older adults is now affecting our youth with more and more children and adolescents being diagnosed with Type 2 diabetes and pre-diabetes. With the current COVID-19 pandemic, India stares at a huge epidemic of obesity and diabetes with more and more people being homebound leading to decreased physical activity, increased calorie consumption,

irregular sleep pattern and increased stress levels.

Several studies have shown higher body fat and increased cardiovascular risk at a lower value of BMI in Asian versus white population, hence BMI of ≤ 23 kg/m² in Asians as against ≤ 24.9 kg/m² in the white population is considered as healthy body weight and ≥ 23 kg/m² and ≥ 27.5 kg/m² in Asians as against ≥ 25 kg/m² and ≥ 30 kg/m² in the white population is considered to be overweight and obese.

We are thin fat people which means we appear slim but have excess body fat with more concentration of fat in the abdominal area (visceral fat). This predisposes us to an increased risk of cardiovascular disease. "Longer the belt, shorter is the lifespan", hence the cut off waist circumference for Asians is ≤ 90 cm for males and ≤ 80 cm for females in the Asian population as against the ≤ 102 cm for males and ≤ 88 cm for females in the white population.

Innovative Co-Development

Leverage on the consumer trends towards
healthy Dairy solutions with
AAK Kamani's Speciality Oils and Fats



Explore our solutions for a range of Dairy Applications



FD / Ice-Cream



Cheese Analogue



Yellow Fat



Whipped Topping



Cooking Crème



Thick shakes



Natural Emulsifiers



Coffee Whitener

To Co-Develop innovative solutions, contact

AAK KAMANI

info.in@aakkamani.com | ☎ 1800 266 6363 | www.aakkamani.com



Medical Nutrition Therapy (MNT) in Type 2 Diabetes

Nutrition is the cornerstone of diabetes management as what, when and how much we eat has a major impact on our blood glucose levels, weight, and other blood variables. The good news is that there is no “Diabetic Diet” and the entire family is encouraged to follow a healthy meal plan. It is not a “one-size-fits-all” diet plan, but a flexible meal plan customized to address individual nutrition needs based on medical, socio-cultural, lifestyle and regional preferences. This will ensure better compliance and sustainability which is usually a challenge observed in individuals with diabetes.

The goals of MNT in Type 2 Diabetes are to

- Attain individualized glycemic, blood pressure, and lipid goals
- Achieve and maintain body weight goals
- Delay or prevent complications
- Maintain the pleasure of eating

For all overweight or obese patients with diabetes or prediabetes, lifestyle modification to achieve and maintain a minimum weight loss of 5-7% is recommended. It is suggested to increase moderate-intensity physical activity (such as brisk walking) to at least 150 min/week after a fitness consent from the treating physician.

Weight loss can be attained with lifestyle modification programs that aim to achieve a 500–750 kcal/day energy deficit or provide

1,200–1,500 kcal/day for women and 1,500–1,800 kcal/day for men, adjusted for the individual's baseline body weight.

As per recent scientific

evidence, restricting calories to less than 800–1000 calories in adults under strict medical supervision of a qualified dietitian and physician has shown remission of type 2 diabetes. A meal replacer (shakes/meals/bars) which is nutritionally adequate may be recommended in such situations. They help provide the body with the necessary nutrients while restricting calories.

For individuals with diabetes, American Diabetes Association does not recommend a single ideal dietary distribution of calories among carbohydrates, fats, and proteins; but emphasises on personalised recommendations keeping individual goals in mind.

The Starch study has shown that Indian diets typically contain 65-70 percent of calories from carbohydrates and only 10-12% calories from protein. Carbohydrates are mostly from refined sources such as polished white rice, or refined wheat and its products.

Reducing overall carbohydrate intake for individuals with diabetes has demonstrated the most evidence for improving glycemic control and may be applied in a variety of eating patterns that meet individual needs and preferences.

Extreme diets like low carbohydrate ketogenic diets, paleo diets, vegan diets or Intermittent fasting if desired to be followed, must be done after the consent of your treating physician, and carefully planned,

and executed following consultation and strict supervision of a qualified dietitian to prevent hypoglycemia and nutritional deficiencies.

Individuals on insulin, SGLT2 inhibitors, alpha glucosidase inhibitors and oral hypoglycemic agents like sulphonyl ureas are advised to consult their treating physician to adjust medications before embarking on a ketogenic or a low carb diet or on intermittent fasting.

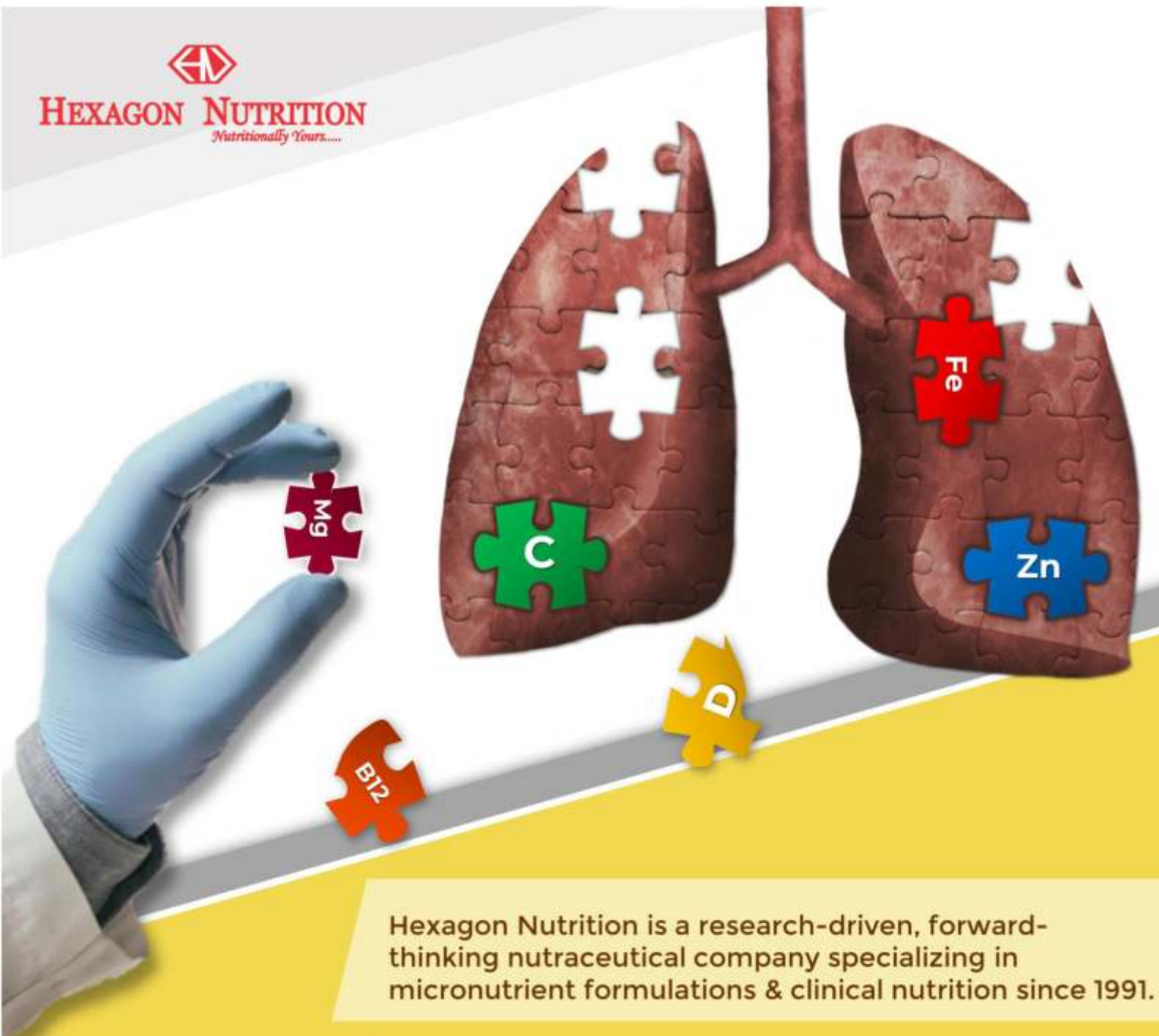
Women who are pregnant or breast feeding, individuals who have or are at risk for disordered eating, history of renal disease or any other medical condition should be discouraged from following the low carbohydrate ketogenic diets.

Mediterranean style eating pattern, eating primarily plant-based foods, such as fruits and vegetables, whole grains, legumes and nuts, replacing butter with monounsaturated fats, using herbs and spices as an adjunct to salt to flavour foods, limiting red meat to no more than a few times a month, eating fish and poultry at least twice a week, getting plenty of exercise and enjoying meals with family and friends is recommended as it has shown to reduce the risk of heart disease.

Based on the Indian dietary patterns, a reduced calorie, moderate carbohydrate (~50%), moderate fat (~30%) diet with healthy monounsaturated fats and adequate protein (~20%) along with plenty of green leafy vegetables is the best alternative to ensure long term sustenance and compliance. Nutrient-dense carbohydrate sources that are high in fibre (20 g/1000 kcal) and minimally processed must be chosen. Low glycemic index (GI) and low glycemic load (GL) foods are preferred to ensure better post prandial glucose control. The meal plan must include non-starchy vegetables, minimal added sugars, fruits, whole grains, as well as dairy products.



HEXAGON NUTRITION
Nutritionally Yours.....



Hexagon Nutrition is a research-driven, forward-thinking nutraceutical company specializing in micronutrient formulations & clinical nutrition since 1991.

Our experts provide tailored innovation and product development support with a unique range of expertise in R&D, regulatory and applications.

Head Office:

404/A, Global Chambers
Off. Link Road, Andheri (West),
Mumbai – 400 053

Contact us at:

marketing@hexagonnutrition.com
+91 87794 53932 / +91 80974 25998



www.hexagonnutrition.com

Choose wholegrain food sources such as whole wheat, unpolished rice, millets like jowar, bajra, foxtail millet, barnyard millet instead of refined foods like refined flour and its products. Choose seasonal fruits which are just ripe and not overripe. Space out your fruits and do not have them with meals or immediately post meals.

Protein intake should be maintained at about 15% of total calorie intake. The IMRB 2017 survey shows that 73 percent of Indians are deficient in protein intake while above 90 percent are unaware of their daily requirements of protein. Uncontrolled glucose levels when coupled with a low protein diet can lead to sarcopenia and a weekend immune system, hence efforts to ensure consumption of good quality protein in adequate amounts must be made. Increase the protein intake by incorporating protein rich foods such as eggs, curd, buttermilk, paneer, sprouts, dal, soybean, soy chunks, soy granules, lean meat, fish, etc in the meals. Quantity of protein intake will depend on age, activity, sarcopenia, and kidney function.

Fat intake must be maintained at about less than 30% of total calorie intake. Most of the fat must come from monounsaturated fatty acid (MUFA) and polyunsaturated fatty acids (PUFA) with Saturated fatty acids (SFAs) intake being less than 10% of total calories/day. Focus on both the quality and quantity of oil. It is important to note that all oils, olive oil, rice bran oil, sunflower oil or any other oil have similar calories and should be used judiciously. On an average, an individual is

recommended 3 level teaspoons/day or 1 level tablespoon/day.

Rotate oils or use commercially available blended oils to acquire a balance of fatty acids to enjoy maximum health benefits. Foods rich in long-chain omega 3 fatty acids, such as fatty fish (100-200 g/week) and nuts and seeds like walnuts and flaxseeds are advised. It is recommended to avoid consumption of foods high in saturated fat like butter, margarine, red meat etc. Trans-fat consumption must be as close to nil. Look for words such as “shortening”, “partially hydrogenated vegetable oil” or “hydrogenated vegetable oil” in the ingredients. These are sources of trans-fats. Reheating and refrying of cooking oils should be avoided.

Choosing from the variety of options from each food group helps ensure that you get the right amounts of all the good quality nutrients required to maintain good health. This is called Diet Diversity. Restrict consumption of foods such as fried snacks, bread, biscuits, papads, pickles, ketchups, sauces, sugar, jaggery, honey, fruit juices, aerated drinks etc. Refrain from regular consumption of alcohol and stop chewing tobacco and smoking.

Maintain your meal timings and take your medication regularly at the time prescribed by your physician. Monitor your glucose levels more often to ensure that they are in the normal range. Portion Control is the key; choose a 9” plate instead of a 12” plate as recommended by the American Diabetes Association. Fill half the plate with non-starchy vegetables and salads. Fill 1/4th of the plate with unpolished cereals, millets and starchy vegetables and the remaining 1/4th plate with protein rich food sources. How you consume your meal also affects your post meal blood glucose levels. Several studies have shown that if you eat protein and

fibre first followed by carbs or starch, the post meal blood glucose levels are better. For example, if you have chicken, fish, paneer or dal with vegetables first followed by rice or chapatti, the post-meal blood glucose level spike will be blunted. Include healthier protein rich snacks for munching like roasted chana with unsalted peanuts, boiled chana or sprouts chaat with veggies, unsalted nuts, plain yoghurt /curd or thick buttermilk. Drink adequate water and stay hydrated unless advised against by your physician.

Artificial sweeteners within the acceptable daily intake limit can be consumed. Sucralose and stevia are the safest for consumption in adults, children as well as pregnant women whereas aspartame is not recommended for children, pregnant women, and individuals with hyperphenylalaninemia or phenylketonuria. Acesulfame Potassium not recommended to be used by individuals on potassium restricted diet, in kidney disease or in individuals having sulpham antibiotic-based allergy.

As rightly said by the father of medicine, Hippocrates, “Let food be thy medicine and medicine be thy food”. Certain foods easily available in our kitchen have bioactive compounds which have shown immense benefits in regulating and improving blood glucose levels in people with pre-diabetes and diabetes. Some of the superfoods beneficial in diabetes are cinnamon, fenugreek seeds, Indian gooseberry (amla), flax seeds, kidney beans, apple cider vinegar among others.

One word of caution here is that just consuming superfoods will not help if your lifestyle is not corrected. It is important to follow a healthy lifestyle even if you incorporate superfoods in your diet to get the desired results. Also, what suits one person may not suit another as some of them can cause certain side effects if taken in excess or may be contraindicated in certain





Powered by Innovation , Driven by Passion

Registered Office : Fine House, Anandji Street, Off MG Road , Ghatkopar (East).

Tel : 21025000 Fax : 2102 6666 , 21028899

email : info@fineorganics.com website : www.fineorganics.com



Food Emulsifiers :

Glycerl Mono Sterate
Sodium/Calcium Sterayl- 2 – lactylate
Distilled Monoglycerides
Sorbitan Esters
Propylene Glycol Esters
PGPR and other Specialty Emulsifiers
Cold water dispersible emulsifier system.
Datem (Powder/Liquid)
M.C.T Oils
Ammonium Phosphatide (Soyalectin Substitute)

Beverage Clouding Agent :

Finacon CAC

Anti Fungal/Anti Mold Agents :

Calcium Propionate.
Sodium Propionate.

Specialty Additives :

Bread Improver
Cake Improver
- Biscuits Improver
- Lecithin Replacer (Biscuit)
Whipped Topping Concentrate for Cakes
Eggless Cake Concentrate
Fondant
Mousse Mixes
Glazing Gel
Marzipan
Vital wheat Gluten
Enzymes
-American Brownie
Bread Mixes

conditions like pregnancy, lactation, co-morbid conditions or when on certain medications like blood thinners etc. Hence it is important to consult your treating physician and a qualified dietitian before you start anything new. Do not fall prey to quacks and self-proclaimed health experts and influencers.

Picking up boxes at a supermarket/ e-commerce website which have words like 'sugar-free', 'diet', 'baked not fried' and even 'diabetes friendly' may seem like the healthier option, but seldom is. It is recommended that you take that extra minute to read the nutrition label of the item you are buying. Reading the nutrition label is the only way to know if the product is really diabetes friendly or a scam. Choose products which are low in refined flour, sugar, sodium and high in fibre, protein and healthy fats.

Sitting is the new smoking and studies have shown that sitting for more than eight hours at a stretch increases your risk for diabetes by 90%. Get up every 30 mins from your seat and move for at least three minutes before you go and sit back on your seat. Find ways to stay active. Dedicate 30 mins to one hour of your day to physical activity. Working out releases happy hormones which keep you feeling happy and energetic through the day keeping your blood glucose levels in control.

Stress has shown to have a direct impact on blood glucose levels. It is therefore recommended to practice meditation, breathing exercises, dance and listen to music to help you manage stress better.

To conclude, following a meal plan for diabetes does not mean avoiding your favourite foods and special family meals. Eating to beat diabetes is about making smart choices while focussing and bringing back the joy of eating and living with diabetes. Follow a meal plan which has no expiry date and is simple, sustainable, and economical to follow in the long run. Do not fall prey to Social media or WhatsApp forwards, or information coming from social media influencers or

Healthcare

Serving Size	Serving Per Container	
Amount per serving	Calories	
Total Fat	...	Vitamin A
Cholesterol	...	Vitamin C
Sodium	...	Calcium
Total Carbohydrate	...	Iron
Dietary Fiber	...	
Sugar	...	
Protein	...	

* Percent Daily Values are based on a calorie diet. Your daily values may be higher or lower depending on your calorie needs.

self-proclaimed health experts without authenticating the same with your physician and dietitian. [Excerpts from my book- Diet in diabetes Simplified available on Amazon, Kindle and Flipkart](#)

References

1. IDF Atlas 2019
2. Anjana RM, Deepa M et.al. 2017, Indian Council of Medical Research-INDIA Diabetes (ICMR-INDIAB) study
3. Misra A. Ethnic-Specific Criteria for Classification of Body Mass Index: A Perspective for Asian Indians and American Diabetes Association Position Statement. *Diabetes Technol Ther.* 2015;17(9):667-671. doi:10.1089/dia.2015.0007
4. Misra A, Consensus Statement for Diagnosis of Obesity, Abdominal Obesity and the Metabolic Syndrome for Asian Indians and Recommendations for Physical Activity, Medical and Surgical Management, JAPI, 2009
5. American Diabetes Association Standards of Medical Care in Diabetes. *Diabetes Care* 2021
6. RSSDI 2020 guidelines
7. NIN ICMR 2020 guidelines
8. Shashank R Joshi et al Results from Dietary Survey in Indian T2DM Population: a STARCH Study. *BMJ Open* 2014:e005138
9. Giuseppe Grosso, et al., A comprehensive meta-analysis on evidence of Mediterranean diet and cardiovascular disease: Are individual components equal?, *Critical Reviews in Food Science and Nutrition*, volume 57, 2017 - Issue 15 (Prevención con Dieta Mediterránea [PREDIMED] Study).
10. Mahan, L. Kathleen., Escott-Stump, Sylvia., Raymond, Janice L. Krause, Marie V. (12th Eds.) (2012) *Krause's food & the nutrition care process* /St. Louis, Mo. : Elsevier/Saunders; pg 766-799.
11. Consensus dietary guidelines for healthy living and prevention of obesity, the metabolic syndrome, diabetes, and related disorders in Asian Indians, *Diabetes Technol Ther.* 2011 Jun;13(6):683-94.
12. Alpana P. Shukla et.al, Food Order Has a Significant Impact on Postprandial Glucose and Insulin Levels, *Diabetes Care* 2015 Jul; 38(7): e98-e99.
13. Imai, S., Fukui, M., & Kajiyama, S. (2014). Effect of eating vegetables before carbohydrates on glucose excursions in patients with type 2 diabetes. *Journal of clinical biochemistry and nutrition*, 54(1), 7-11.





Prolicious

40g Plant based
protein (per 200g pack)

2X Protein of regular khakhras

The same amount of protein as a protein bar!

✓ GLUTEN FREE VARIANTS

✓ LOW GI VARIANTS

✓ VEGAN

✓ HIGH FIBRE

✓ TRANS FAT FREE

+91 93216 24511 | FOLLOW US ON   @itsprolicious |  www.prolicious.com

Samyog Health Foods Pvt. Ltd.

IMPACT OF ADVERTISING & CLAIMS ON THE BUYING CHOICES OF CONSUMERS



AUTHOR

Mr Zafar Khan,

Head Scientific and Regulatory affairs,
Mondelez International

An insight about Advertising & Claims:

“Advertising is the process of calling the attention of the public to a product or service by a business” (by Johnson).

Advertising is a way of communication to promote a product and encourage a consumer for making purchase decision about a product or service and conveying information to viewers. It is considered as a vital and essential element for the economic growth of the marketers and businesses. The purpose of advertisement is to augment awareness about the existing product or launch of a new product, to ensure right product information reaches the customer, to enhance brand awareness, to build brand loyalty and help in increasing sales.

People appreciate advertisements for their creativity. But David Ogilvy once said, “When I write an

advertisement, I don't want you to tell me that you find it ‘creative’.” Creativity is just one side of the coin, and the other side is a business objective. Based on the objectives, different kinds of advertisements are created. With time, objectives change, and accordingly, advertisements also change. Four important business objectives are *category penetration, brand penetration, increase usage frequency and increasing usage volume*.

Category penetration is needed when a category is new, less popular, or less understood, then the target audience is required to be educated about the benefits of that category e.g. Mutual funds. Once the target audience becomes familiar with the benefits of a category, it becomes easier for brands to penetrate.

Brand penetration focuses on meaningful benefits where consumers are not used to make choices so some creativity helps to have a personalised perception and will enable brand penetration even in crowded market.

Increase usage frequency: Frequency is about how often your brand offering is consumed by your target audience e.g. personal hygiene products or approved daily use nutritional supplements etc.

Increasing usage volume is achieved by informing consumers on usage of the product for quantity to be used for optimal benefits.

Claim is an assertion that something is true. Advertising claims should be relevant, specific, clear, and sensitive to all factors, enabling consumer in decision making. A Claim provides great value and attributes to a brand. Usually, claims are determined by listing the recognized properties of each ingredient contained in the formulation or if any study is conducted then product-based claims can be made.

Claims draw a lot of consumer attention hence increase chances of purchase. Few emerging claims are like Origin claims e.g. *Assam Tea, COSTA RICA Coffee (Biodiversity law is picking up among claims for origin- geographical indication)*.

8 IMMUNITY NUTRIENTS BANAYE RAKHE IMMUNITY HAR DIN



Bournvita has nutrients that support your child's immunity. So, when schools re-open, they're ready to get going.

- Vitamin A
- Vitamin B12
- Vitamin C
- Zinc
- Vitamin D
- Selenium
- Iron
- Copper



Bournvita encourages everyone to wear masks and practice social distancing while stepping out.

A bundle with Nutrients known to support in the maintenance of strong bones (Vitamin D, Phosphorus), strong muscles (Protein, Vitamin D), active brain (Iodine, Iron, Vitamin B2, Vitamin B12) and normal function of the immune system (Vitamins (A, B12, C, D), Zinc, Iron, Copper, Selenium). Recommended as part of a balanced diet and healthy lifestyle. 14.4g in Rs. 5/- pack (recommended serve of 3 packs a day).

Unique, naturally - sourced and clean NUTRALYS® textured pea protein, **environmentally-friendly**, enabling the preparation of a **variety** of **meat substitutes** for **indulgent** new **experiences**.

NUTRALYS®

Plant Proteins – textured

	 NUTRALYS® TP65M	 NUTRALYS® T70S	 NUTRALYS® TP-C	 NUTRALYS® TF-C
Raw material origin	Pea	Pea	Pea	Fava bean
Shape	Minced	Strips	Chunks	Chunks
Protein content (g/100g commercial product)	65%	70%	70%	60%
Meat alternative applications (suggested but not limited to)	Burgers, Meatballs, Sausages, Nuggets, Fish Sticks, Spreadables	Burgers, Meatballs, Sausages, Nuggets	Burgers, Meatballs, Sausages, Nuggets, Fish Sticks, Spreadables	Burgers, Sausages, Meatballs

*Dry substance

Visit roquette.com/product-finder for product availability by region.

PERFORMANCE

- **Meat-like** aspect and bite of recommend reordering this to say NUTRALYS® grades
- **Binding** properties
- **Healthy** complementary plant proteins

FULFILL EXPECTATIONS

- **Delicious** meals
- **Exciting new** diet options with **variety**
- **Sustainable** foods from responsible **companies**

www.roquette.com
Email: foodbiz.india@roquette.com



ROQUETTE
Offering the best of nature™



Create with
NUTRALYS®

In addition reduction/ comparative claims are also well used nowadays. Few illustrations:



How advertising affects consumers and how it works:

In order to formulate more effective advertising strategies, advertisers should be concerned with how advertising affects consumers and how it works. Advertising input means advertising of own brands with a well devised message content, media scheduling and repetition as components of this input which constitutes the advertising strategy that triggers a consumer's response. [1]

Individual responses to advertising are mediated by factors such as motivation and ability to process information and attitude towards the advertisement. These mediating factors can alter or radically change response to advertising. They, therefore, can be considered *Filters* of the initial advertising input. [1]

The intermediate type of response implies that, consciously or unconsciously, advertising must have some mental effect (e.g., awareness, memory, attitude toward the brand) before it can affect behaviour. *Cognition*, the "thinking" dimension of a person's response, and *Affect* the "feeling" dimension are portrayed as two major intermediate advertising effects. Conscious and unconscious memories of product purchasing and usage, thus, behaviour feeds

back to *Experience*, which is third principal intermediate effect. As for most products and especially the frequently purchased packaged goods in which much research is interested, the consumer's mind is not a blank sheet but rather already contains memories.

Individual purchasing and product usage, or changes thereto, represent the consequential, behavioural effects of advertising.

Discussion on impact of Advertising with claims on consumers based on few studies

1. Advertising recalls, Implicit vs Explicit:

For an advertising, to be successful, it must stick in the consumer's memory. Hence consumer's Implicit and Explicit recall, understanding and perceptions play an important part in consumer behaviours.

In past decades, psychologists and consumer behaviour scientists have investigated consumer's evaluation of products and decision-making. In this evaluation Psychologists have classified how people make decisions in two ways: One that is fast, automatic, and effortless, which relies on preconceived beliefs, intentions, patterns, perceptions, intuition, and/or memory, this process is called "implicit" evaluation. [2]

Second, which is slow, effortful, and conscious, which relies on cognitive reflection of options when decisions are being made, and hence "explicit" evaluation occurs when consumers judge products through a thorough assessment of the available

information on the product.

When assessment of consumers' implicit and explicit recall was studied, understanding and perceptions of products with a nutrition claim and a symbol depicting 'health,' and to determine whether these perceptions differed among Nutrition Facts table (NFT) users vs. nonusers. It was found that for claim condition, most participants (75%) were able to recall the presence of a claim. Claims attracted consumer's attention and increased perceived nutritional quality (i.e., the 'halo' effect), regardless of the product's nutritional composition, even for less healthy version. Most participants (77%) made their decisions implicitly using the front of labels. Consumers used NFT along with the heart symbol had a better understanding of the nutritional quality of products.

As consumers are less likely to use nutrient declarations when assessing and/or purchasing foods, results from this study stress the importance of having right information strategy with nutrition labels that may support fast decision- making by consumers.

2. Advertising recalls - Health related motive orientations (HRMO):

Health claims may contribute to better informed and healthier food choices and to improved industrial competitiveness by marketing foods that support healthier lifestyles in line with consumer preferences. [3] Referring to another past study to investigate how consumers' explicit and implicit health-related motive orientations (HRMOs) together with the type of calcium-claim worked (1) a nutrition claim, i.e., "Fruit





juice enriched with calcium”, (2) a health claim, i.e., “Fruit juice enriched with calcium can strengthen bones”, (3) reduction of disease risk claims, i.e., “Fruit juice enriched with calcium reduces risk in the development of osteoporosis”. [3]

The findings indicate that stronger implicit HRMOs (i.e., indirect benefits of calcium for personal health) are associated with higher perceived credibility. Consumers’ explicit HRMOs, which refer to direct benefits or physiological functions of calcium in the body—as legally permitted in current calcium-claims in the EU—do not associate with reactions to the claims. Independently of consumers’ HRMOs, the claim type significantly affects the perceived credibility and purchasing intention of the product. [3]

Overall, the claim type was found to be a more important determinant of consumer’s perceived credibility than their health-related motive orientation.

In general, it is seen that Products offering more than one health claim are more attractive to consumers and this could translate sales boost. [4]

In the interest of consumers, Advertising & claims need to be regulated : Who regulates and how? Advertising and claims are governed by regulatory framework and well know bodies are Food safety and standard authority of India (FSSAI), Advertising Standards Council of India (ASCI) and Consumer Protection Act, 1986.

1. FSSAI through Food Safety and

Standards (Advertising and Claims) Regulations, 2018 which are aimed at establishing fairness in claims and advertisements of food products and make food businesses accountable for such claims /advertisements to protect consumer interests e.g., Nutritional Claims on pack.

Any person, including a third party, who advertises or is a party to the publication of any misleading advertisement not complying with these regulations would be penalised as per Section 53 of the Food Safety and Standards Act 2006.

Regulation has clearly defined the “Advertisement” means any audio or visual publicity, representation or pronouncement made by means of any light, sound, smoke, gas, print, electronic media, internet or website and includes through any notice, circular, label, wrapper, or other documents and “Claim” means any representation which is printed, oral, audio or visual and states, suggests, or implies that a food has particular qualities relating to its origin, nutritional properties, nature, processing, composition or otherwise. Criteria for claims have been defined in regulations.

2. Advertising Standards Council of India (ASCI): The Indian advertising market is regulated and controlled by a non-statutory body, the Advertising Standards Council of India (ASCI). ASCI is voluntary self-regulatory council established in 1985 to promote responsible advertising and to enhance public confidence in advertisements under MoU with FSSAI.

To ensure that advertisements are not offensive to generally accepted standards of public decency. To safeguard against the indiscriminate use of advertising for the promotion of products regarded as hazardous to society or to individuals. Advertisements observe fairness in competition to inform the consumer

on choices in the marketplace while observing the canons of generally accepted competitive behaviour in business.

3. Consumer Protection Act, 2019, revised from its earlier version of 1986 has been enforced in July 2020. This act provides for protection of the interests of consumers and for the said purpose, to establish authorities for timely and effective administration and settlement of consumers' disputes and for matters connected therewith or incidental thereto.

To conclude, a creative and well executed advertisement has always a great impact on the buying trends of the consumers; claims add great value and credibility. Advertisement and claims are defined by many factors like business needs, scientific validations, vigilance (internal and external) and consumer behaviour, which is regulated by need, price, claims implicit/explicit. In advertisements, consumer centricity is the key.

References:

1. Vakratsas, D., & Ambler, T. (1999). How Advertising Works: What Do We Really Know? *Journal of Marketing*, 63(1), 26–43.
2. Franco-Arellano B, Vanderlee L, Ahmed M, Oh A, L'Abbé MR. Consumers' Implicit and Explicit Recall, Understanding and Perceptions of Products with Nutrition-Related Messages: An Online Survey. *International Journal of Environmental Research and Public Health*. 2020; 17(21):8213.
3. Hoefkens C, Verbeke W. Consumers' health-related motive orientations and reactions to claims about dietary calcium. *Nutrients*. 2013;5(1):82-96. Published 2013 Jan 10. doi:10.3390/nu5010082
4. More health claims increase sales, study finds, 24-Jul-2007 By Alex McNally, <https://www.nutraingredients.com/article/2007/07/24/more-health-claims-increase-sales-study-finds>

ASHWAGANDHA - THE MOST TRUSTED AYURVEDA OF ALL TIME



AUTHOR

Ms. Abir Ansari,
Jr. Nutritionist, PFNDI

Ashwagandha, also named as Indian ginseng or Indian winter cherry is extensively used since prehistoric period as a medicinal herb.

It is grown and found in countries like India, the Middle East and parts of Africa. People have been using its root and orange red fruit as traditional treatment for many diseases. Ashwagandha is a Sanskrit word meaning smell of horse which describes about its two beautiful qualities viz. distinct smell and powerful strength.

Ashwagandha is one of the most important traditional Ayurvedic herbs. Because of its healing quality, it helps to overcome symptoms of stress, anxiety, depression and other mental problems. Besides that, it has benefit on heart health, shows anticancer properties, helps managing diabetes, weight loss, etc. In short, this herb has come with broad spectrum of health advantages.

Benefits of Ashwagandha on Health:

Traditional Tonic for countless problems

Earlier people have used ashwagandha as an effective medicine to treat varied health problems. Powder extracted from its roots or leaves are commonly used for treatment. It has been the most trusted medicine of all time. The high concentration of withanolides present, are been proven to fight against inflammation and retard the growth of tumour cells.

Helps Managing Diabetes

Several studies (1, 2, 3) have supported the effect of ashwagandha in lowering blood glucose level. For people dealing with abnormally high blood sugar, consuming ashwagandha can be beneficial and effective solution for them. You must be wondering how? Well, it works by increasing insulin secretion in body and improves insulin sensitivity in muscle cells.

On the other side, taking ashwagandha along with other medicine or drugs might cause sugar level become too low, so there should be conscious consumption.

Acts as Adaptogen in Relieving Stress

As compared to other sedative drugs or medicines, ashwagandha may have calming effect in treating symptoms of stress and anxiety (4). This herb is well known for its stress reducing property. Usually, people with stress have high level of cortisol in blood. Cortisol is a stress hormone secreted by adrenal glands in response to stress or too low blood sugar. Ashwagandha can have a positive impact in maintaining right level of this hormone in body. Moreover, they are also believed to reduce depression and help to rejuvenate with life. Taking ashwagandha as supplement can be beneficial in treating such mental disorders.

Good for Brain Health

It is proven to promote antioxidant activity that protects nerve cells from harmful free radicals. Ashwagandha as an ayurvedic medicine has been traditionally used to improve memory (5). It can lower the rate of loss of brain functions thereby helping to treat neurodegenerative conditions including Parkinson's disease, Alzheimer's disease and Huntington's disease.

Scientist also supports the fact that consuming ashwagandha can alleviate brain function problems caused due to injury or external damage. According to some studies, it can remarkably boost task performance and improves general memory, attention and reaction time among healthy people.

Holds Anti-cancer Properties

Researchers have found that Withaferin, a compound present in ashwagandha may have ability to induce apoptosis, a series of programmed cell death in body (6). Apoptosis cycle is generally blocked in cancer patients. Withaferin makes cancer cells less resistant to apoptosis. Besides that, this compound is known to emerge Reactive Oxygen Species (ROS) in cancer cells causing obstruction in their function. Combination of withaferin from ashwagandha with medications and therapies can show better results in people dealing with cancer. This Ayurveda herb could help in treating many types of cancer namely breast, colon, lungs, ovarian and brain cancers.

Promotes Healthy Heart

All kind of Ayurveda medicines are known for its tremendous heart friendly characteristics. Ashwagandha root extract can strengthen cardio-respiratory system. They are trusted to lower high blood pressure, cholesterol level and triglycerides in blood that eventually could improve heart health (7).

Triglycerides are fats which are considered as bad for health. These fats if present in large amount might

block important blood vessels which perhaps led to serious chronic diseases. Ashwagandha promotes significant decrease in LDL which is bad cholesterol and remarkable reduction in triglycerides as well.

Increase Fertility in Men

This supplement can boost Testosterone which is a male reproductive hormone necessary to produce sperm (8). One study conducted on ashwagandha in infertile men shown increased sperm count and better motility in participants. It helps to improve sexual health by decreasing oxidative stress and balancing hormones.

Ashwagandha are widely available as herbal medicine and also safely consumed by many people. However, it is been advised to avoid taking this supplement during pregnancy and lactation (breastfeeding) period. The reason behind is not much clear yet, but some studies had evident that it may cause miscarriage in pregnant women. In addition, people who are already on certain medications should once check with their doctor before consuming.

5 Amazing Ashwagandha recipes you'll surely fall in love with:

Not in just medical use, you will find this wonderful herb more versatile in kitchen role. These recipes are quick and easy to make especially for those who dislike taste of medicine or powder on tongue.

Ashwagandha brew - Just like how you make masala tea at home using spices and herbs, adding essence of ashwagandha in your regular tea tastes really refreshing! To make this amazing



cup of hot brew, all you have to do is add teaspoon of ashwagandha powder and pinch of cardamom in blend of milk and water. Mix and heat all together till flavours are well absorbed.

Tip off: For those who don't like strong astringent taste can add a spoonful of honey to mask the bitterness of ashwagandha.

Adaptogenic dry fruit balls -This creamy snack is known to be outstandingly nutritious with every bite filled with richness of protein and energy. The healthiest way to satiate hunger is now very few minutes away. This quick and expert recipe contains chia seeds, pulse raw nuts, coconut oil, dates and of course ashwagandha as ace ingredient. Like traditionally made galactogogues, this exotic balls too are good source for strong immunity and healthy bones.

Mashed Apricot-Banana Porridge - Yes, you heard it right, its banana porridge way forward in most unique style of healthy cooking. This fruit is mashed with fusion of chopped dried apricots, chia seeds, maca and ashwagandha. Number of dried nuts used can very presently mask the bitter taste of ashwagandha making it favourite oatmeal to kids as well. Colour and taste of cooked banana makes this bowl quite appealing. You can even more prettify it with freshly chopped almonds garnished on top.



Cocoa Latte - This recipe has come downright delicious especially for chocolate lovers. The Hot piping drink is made with sweetness of cacao blended with maca, coconut oil and ashwagandha extract. For more indulgent flavour, you can merge these with vanilla extracts and maple syrups. Sipping it warm 2 to 3 times in a day can make you go fresh all day long in busy work routine.

Turmeric Moon Milk - Both ashwagandha and turmeric carry anti-inflammatory properties. We know turmeric as a medicine for injury and healing where turmeric moon milk is traditionally accepted kind of tonic for +many remedies. Some drink it plain as is just turmeric in milk while few combine goodness of nuts along to make it a way healthier. Adding pinch of ashwagandha elevates the golden benefits of this beverage giving you calm stress free sleep at night.

References:

1. <https://doi.org/10.1016/j.phytochem.2015.02.029>
2. https://www.researchgate.net/publication/232814045_Exploratory_study_to_evaluate_tolerability_safety_and_activity_of_Ashwagandha-Withania_somnifera_in_healthy_volunteers
3. <https://www.ijponline.com/article.asp?issn=0253-7613;year=2013;volume=45;issue=4;spage=417;epage=418;aulast=Agnihotri>
4. <https://doi.org/10.4103%2F02537176.106022>
5. <https://doi.org/10.1371/journal.pone.0077624>
6. <https://link.springer.com/article/10.1208/s12248-013-9531-1>
7. <https://doi.org/10.1016/j.phymed.2006.03.005>
8. <https://doi.org/10.1093/ecam/nep138>



COMING EVENTS

International Conference on
Food and Nutrition
Jun 29-30, 2021
Paris, France
Email: support@longdom.com
Contact: +32 532 80123

Food Matter
Live 2021
Jun 29-30, 2021
Web:
<https://www.foodmatterslive.com/>
Contact: info@foodmatters.co.uk

IFT Annual Meeting &
Food Expo 2021
July 18, 2021 18:00
McCormick Place,
Chicago, USA

Contact: +1.312.782.8424
Email:
<https://www.iftevent.org/food-expo/exhibitors>

Institute of Food Technologists
(IFT)
AI Enabled Digital Conference:
FIRST
July 19-21, 2021
Web: <https://www.iftevent.org/>
Contact: info@ift.org

27th International Conference
on Food & Nutrition
July 26-27, 2021
Amsterdam, Netherlands

Contact:
<https://foodnutrition.foodtechconferences.com/registration.php>

International Conference on
Nutrition and Food Science
July 29 - 30, 2021
Manchester City Centre
Web:
<https://manchesternutrition.com/registrationdetails.php>
Contact:
Enquiry@manchesternutrition.com

International Conference on
Food Nutrition and Dietetics
August 27 - 28, 2021
Virtual Event
Web:
<https://foodnutrition.averconferences.com/>
Contact:
foodnutrition@avercongress.org

THE SPICE AND ZING OF CHILI PEPPERS

AUTHOR

Ms. Girija Damle,
Dietitian, PFNDI



Chili peppers (*Capsicum annuum*) are the fruits of *Capsicum* pepper plants. Be it to ward off evil or to add colour and zing to a meal, we Indians love our chillies!

However, it is interesting to know that chillies originated in Mexico, not India. Though chillies are a part of the human diet for at least more than 6,000 years, the Portuguese traders introduced them to Indians only around the 15th century. And yet, they are an important part of our diet and economy today. So much so, that the Guntur chili yard in southern India is the largest dried chili market in Asia.

There are 5 domesticated species of chillies that include numerous types of chili peppers (mostly cultivars) ranging from Bell Peppers, Tobasco, Habanero, to Guntur Mirchi and Bishop's Crown Chili. The most common chillies belong to the *C. annuum* species, while the hottest ones like Carolina reaper belong to the *C. chinense* species (1).

According to the taste, chillies are broadly classified into Bell Peppers, Sweet Peppers, and Hot Peppers. Capsaicin and related compounds (collectively called Capsaicinoids) present in chillies are responsible for the pungency and heat. The quantity and quality of which are dependent on the conditions in which the chili plant is grown. A water-stressed plant bears chillies with higher capsaicinoids and more

heat in turn.

The intensity of spiciness is measured in a unit called Scoville Heat Units (SHU). The intensity of pure capsaicin or the spice component in chillies is 1,60,00,000 SHU. Here is a list of common types of chillies with their SHU values to give you an idea about how much sugar, milk, and water you may need to gulp down to calm your burning mouth, if bite into one.

Guntur Mirchi- 35,000- 3,50,000 SHU

Boriya Chili – 55,000-65,000 SHU

Jwala hot chillies- 20,000-30,000 SHU

Kashmiri Chili- 1,000- 2,000 SHU

Naga morich- 10,00,000- 15,00,000 SHU

Tabiche chili (common green chili)- 85,000-1,15,000 SHU

Byadgi (or Bedgi) Chili- 50,000-1,00,000 SHU

Bell Pepper (Capsicum) – 0 SHU

Fun fact: 'Spicy' is not one of the 5-6 tastes perceived by our tongue. The capsaicin binds to the nerve receptors on our tongue and causes a burning sensation that is referred to as 'spicy' or 'hot' by us.

How to use chillies?

Chillies of most types can be grown at home by simply sprinkling the chili seeds on some soil, watering it regularly, and making sure it gets enough sunlight once germinated.

Freshly harvested green or red chillies or those brought from the market should be

destemmed and stored in air-tight containers or zip-lock bags in the refrigerator. These can then be used to add to temperings, chutneys, vegetable preparations, etc. The bigger varieties like bell peppers can be stored in the vegetable section of the refrigerator for up to a week. Dried chillies, flakes, and powdered chili can last for months if stored in airtight containers in a cool and dry place.

Safety tips while handling chili peppers:

- 1) Never touch your eyes or face when using fresh or dried or powdered chillies.
- 2) Thoroughly wash your hands, chopping board, and knives after using any type or form of chillies.

The capsaicin can also interact with your skin and eyes and cause a burning sensation. These tips may prevent accidents and protect your eyes and nose from the heat flare of chillies.

Fun Fact: While capsaicin may cause a burning sensation in mammals, birds are immune to its effects.

Health Benefits of Chili Peppers

Chili peppers are rich in various micronutrients like vitamin C, vitamin B6, vitamin K, vitamin A, potassium, and copper, etc. (2) Studies show that regular consumption of chilies is linked to greater life expectancy especially related to cardiovascular disorders and cancer. These health benefits are greatly associated with Capsaicinoids, which not only impart a zing but also have potent anti-oxidant and anti-inflammatory properties. Since capsaicin is present in most chilies, the health benefits are also similar with some minor variations (3). Different types of carotenoids like violaxanthin, lutein, etc are characteristic of specific chilies and are also responsible for the plethora of colours and shades of chili peppers. The antioxidant content of mature (red) chili peppers is much higher than that of immature (green) peppers.

Red peppers (including jalapeño, cayenne pepper, chili pepper, and a few other hot peppers) are known to have cholesterol-lowering effects that may be related to several factors including reduction of intestinal absorption of cholesterol, and elevation of cholesterol and bile acid excretion in the feces (4). They also may play a role in reducing triglyceride levels and increasing the levels of good cholesterol. The antioxidant properties of red peppers reduce the risk of plaque formation that is responsible for heart blockages and cardiovascular events. So don't shy away from the little dash of hot sauce or dried red chili in your wraps or sambar!

C. annuum has been shown to have an anti-diabetic effect via several

mechanisms including antioxidant activity and improvement of insulin resistance by increasing insulin sensitivity in peripheral tissues, protecting cells (insulin-producing cells) from damage, and reduction of fasting glucose/insulin levels (4).

Several studies reported that red chili pepper may help to manage obesity by increasing heat production in the body, inducing satiety, fat oxidation, and elevation of energy expenditure (3). They are also said to have natural painkiller-like properties. Having said that, it is important to moderate the amount and type of chili consumed. Too much chili can not only burn your tongue or cause diarrhea, but also have serious implications like gastric ulcers, severe acidity, and even an increased risk of gall bladder cancer.

Culinary uses of chili peppers

Chili peppers are used in various forms including fresh, dried, powdered, pickled, etc. Traditional Indian cooking uses powdered chili individually or as a part of a special spice mix like garam masala, sambar masala, etc, to add to temperings, curries, and raitas. Whole green chilies are the soul of various chutneys, chaat dishes, pickles, etc, and the best companion to Vada Pav and a hot cup of tea.

The bigger, less hot chilies peppers like capsicum and dhabu mirchi are used to make stuffed bhajis (fritters), added to curries, and bhurjis, roasted to add to bhartas and even stuffed with rice or other flavourful stuffing to serve fresh or dried and fried to enjoy with khichadi or curd rice. The chili cheese toast (made with green chilies, green chutney, capsicum, and cheese) is popular street food in many parts of India.

Dried chilies, especially the Kashmiri Mirch and Boriya chili are an integral part of tempering in various dishes around India

including dal tadka, sambar, ker sangria sabji etc. Powdered Kashmiri Mirch is also widely used for its colour more than the taste in dishes like Pav Bhaji, Misal, Paneer masala, etc. Dried red peppers may also be soaked and used to make various chutney, sauces, and marinates.

Traditional recipes like Mirch ka Salan (a Hyderabad dish) and the Maharashtrian Thecha, truly celebrate the chili with a burst of flavours and heat. No condiment tray at a Chinese restaurant is complete without chili vinegar, and at a Mexican restaurant without the hot sauce.

Chili peppers are also added to various global rice dishes, soups, pasta sauces, dips, meat marinates, pizzas, sambals, salads, and recently even to flavour ice cream and chocolates. Aglio-e-olio a simple pasta dish flavoured with only oil, garlic, salt, and red chili flakes is a best-seller at many Italian restaurants. Like the use of chilies unites various cuisines globally, the tolerance to them divides dinners at the table. Chopped Thai chili or jalapeno may be favourite toppings for some, but a nightmare for some.

All this chili talk must have made you want to reach out for a glass of chilled buttermilk. But you never know, your buttermilk may have finely chopped or crushed green chili along with cumin and salt added to it. Because what is Indian food without some chili!

References:

1. <https://www.chilipepper-madness.com/chili-pepper-types/>
2. <https://www.healthline.com/nutrition/foods/chili-peppers>
3. <https://doi.org/10.22038/IJBMS.2018.25200.6238>
4. <https://dx.doi.org/10.1136%2Fopenhrt-2015-000262>

CRACK THE SHELL- THE INCREDIBLE EGGS-CELLENT

SUPPORTED BY NATIONAL EGG
COORDINATION COMMITTEE (NECC)

AUTHOR

Ms. Girija Damle,
Dietitian, PFNDAI



PFNDAI. Ms. Girija Damle (Dietitian at PFNDAI) introduced the experts of the session.

Dr. Ezhil Kumar in his presentation on 'Indian Egg Industry: Present Scenario and Future Prospects' explained, the progression of the poultry industry over the years and the functioning of the 'National Egg Co-ordination Commission'. He also threw some light upon the hierarchy of the present poultry market and the challenges faced in the marketing of eggs like seasonal variations, unawareness, etc. He shared his views on the prospects for the poultry industry and what steps can be taken for the same.

The second speaker, Dr. B Sesikeran gave a talk on- 'Understanding Egg Overall: Nutritional Aspects covering Health Benefits & Adverse Effects'. As a part of his presentation, he talked about the affordability and detailed protein composition of eggs along with other nutrients like lipids and

carotenoids. He explained in detail the properties of the bioactive compounds present in eggs. Dr. Sesikeran spoke about the studies that assessed the adverse effects of egg consumption on cardiovascular health and shared eye-opening results stating no significant increase in CVD risk on egg consumption. He concluded his talk with some latest scientific data and recommendations on egg consumption.

Dr. Javeed Mulani talked on 'Egg Quality Management System from Farm to Fork.' He gave detailed insights on the issues with egg safety like infections, contamination, cracks, blood spots, etc. He spoke about the research, quality parameters, and biosecurity undertaken for improving egg quality. He also explained the processing, lab testing, transportation, and storage, and branding of eggs.

Dr. Jagadish Pai, in his talk on 'Processed Egg and Products', spoke on the processing and grading of eggs and manufacturing of products from eggs, like egg liquid, powder, frozen egg, etc. He also highlighted the endless applications of egg and its components in the food industry, for example – thickening, leavening, binding, emulsifying, etc.

Protein Foods & Nutrition Development Association of India (PFNDAI) recently organized a webinar on "Crack the shell- The Incredible Eggs-cellent, supported by National Egg Coordination Committee NECC", where the main objective was to help our audience clarify facts and myths related to egg consumption, understand the poultry market and egg processing in India. The webinar was held on 18th March 2021 from 3:00 pm -6:00 pm.

The speakers for the webinar were- Dr. Ezhil Kumar (Chief Op Officer, NECC), Dr. B Sesikeran (Former Director NIN, Hyderabad), Dr. Javeed Mulani (Manager, Supply Chain, Vista Processed Foods), Dr. Jagadish Pai (Executive Director, PFNDAI) and Ms. SwechhaSoni (Manager, Food & Nutrition, PFNDAI). The webinar was attended by approximately 250 audiences. The attendees included professionals working in food industries and regulatory bodies, professors, research scholars, students, dietitians, and scientists.

Dr. Jagadish Pai (Executive Director at PFNDAI) welcomed everyone and gave a brief introduction to

Ms. Swechha Soni gave a talk on 'Newer Concepts in Eggs.' She shared updates of various egg-related advancements like organic eggs, vegetarian eggs, cage-free eggs, nutrient-enhanced eggs, etc. Ms. Swechha gave details about the characteristics and health effects of designer eggs. She also clarified some myths about eggshell colour, the fertility of eggs, etc.

The audience had some questions that were addressed in brief details by all the speakers after their

respective talks.

The presentations by the speakers were followed by a panel discussion conducted by Dr. Jagadish Pai and Ms. Swechha Soni, myths and facts about the health effects of egg consumption. The panellists were Ms. Naaznin Husein (Founder Director, Freedom Wellness management), Mr. Rakesh Gehlot (Manager, Sourcing Category Licious), and Dr. Pradip Naik (Senior Manager, Nutrition & Health Sol). The enlightening panel

answered various questions on eggs from the audience. Some of them were related to the safety of consumption of eggs during the bird flu outbreak, effects of the popularity of plant-based diet on the egg market, health benefits of various egg nutrients like choline, protein, minerals, the efficacy of protein supplements vs eggs, etc.

The webinar ended with a vote of thanks by Ms. Anuja Padte.

The image shows a promotional poster for the webinar "Crack The Shell : The Incredible Egg-cellent" organized by PFNDAI in collaboration with NECC. The poster lists the speakers and panelists. To the right of the poster is a grid of video feeds showing the participants.

Protein Foods & Nutrition Development Association of India
In Collaboration With
National Egg Coordination Committee
Organises Webinar on

"Crack The Shell : The Incredible Egg-cellent"

SPEAKERS

- Dr Jagadish Pai, Executive Director, PFNDAI
- Dr B Sesikaran, Former Director, NIN, Hyderabad
- Dr Erhil Kumar, Chief Op Officer, NECC
- Dr Javeed Mulani, Mgr. Supply Chain, Vista Processed Foods
- Ms Swechha Soni, Mgr. Food & Nutrition, PFNDAI

PANELISTS

- Mr Yogesh Vaidya, Head-Contract Mfrt, Britannia Inds Ltd
- Ms Naaznein Husein, Founder Director, Freedom Wellness mgmt
- Dr Pradip Naik, Senior Mgr. Nutrition & Health Sol
- Mr Rakesh Gehlot, Mgr. - Sourcing Category Licious

Video Feed Grid:

- Dr Jagadish Pai (PFNDAI)
- Dr Javeed Mulani (Vista)
- Dr B Sesikaran (Ex NIN)
- Dr Erhil Kumar (NECC)
- Ms Girija Darnle (PFNDAI)
- Ms Swechha Soni (PFNDAI)
- Mr Rakesh Gehlot (Licious)

A grid of video feeds showing the panel discussion participants. The participants are Dr. Jagadish Pai, Dr. Javeed Mulani, Dr. B. Sesikaran, Dr. Pradip Naik, Dr. Erhil Kumar, and Mr. Rakesh Gehlot.

Video Feed Grid:

- Dr Jagadish Pai (PFNDAI)
- Dr Javeed Mulani (Vista)
- Dr B Sesikaran (Ex NIN)
- Dr Pradip Naik (DSM)
- Dr Erhil Kumar (NECC)
- Mr Rakesh Gehlot (Licious)



National Egg Co-ordination Committee

- Representation to Central and State Governments for poultry development, input availability
- Egg consumption promotional activities
- Results
 - a. Marketing of egg streamlined
 - b. Better realisation for eggs to farmers
 - c. Reasonable price to consumers
 - d. Industry growth started




Dr Ezhil Kumar (NECC)



EGG Nutrition

Health Benefits

Health Risks

B Sesikeran



Dr B Sesikeran (Ex NIN)



Mr Rakesh Gehlot (Licious)



Dr Javeed Mulani (Vista)

Key Gaps & Practices in Egg Production



- 1. Farm practices**
 - Inadequate Biosecurity and Animal Health and welfare practices
 - Gaps in veterinary care program
 - Improper cleaning and hygiene condition in the farm
- 2. Feed**
 - Inadequate quality of layer feed
- 3. Egg handling and storage**
 - Eggs are not collected and handled properly
 - Long time of egg storage at ambient temp in the farm
- 4. Egg grading, processing & traceability**
 - Eggs are sold without grading, processing & traceability
- 5. Quality and safety Checks**
 - Eggs are not checking for minimum quality and safety parameters
- 6. Transportation and storage at store**
 - Development of hairline cracks and breakage of eggs during transportation
 - Eggs are store at ambient temp in store room (bulk quantity)
- 7. There is no guideline and regulation on Eggs – Shelf life/Micro**

A World of Food Solutions



Dr Javeed Mulani (Vista)

PROCESSED EGG PRODUCTS

- ✳ In the US in 2009, out of over 76 billion eggs consumed only 30% were fresh
- ✳ Remaining were liquid, frozen and dried egg products used for various other products including scrambled & omelette prepared at home of service industry but many other products like mayonnaise, ice cream, salad dressing, frozen desserts, cream puffs, cakes, & confections etc.



Dr Jagadish Pai (PFNDAI)

Newer Concepts in Eggs

Ms Swechha Soni, Manager- Food & Nutrition



Ms Swechha Soni (PFNDAI)



Dr Jagadish Pai (PFNDAI)



Ms Swechha Soni (PFNDAI)



Dr Javed Mulani (Vista)



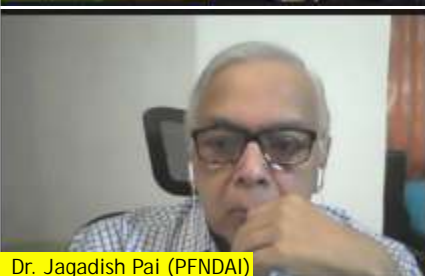
Dr Pradip Naik (DSM)



Ms Nazmin Husein-Freedom Wellness Mgmt



Mr Rakesh Gehlot (Licious)



Dr. Jagadish Pai (PFNDAI)



Dr. B Sesikaran (Ex NIN)



Dr. Javed Mulani (Vista)



Mr. Rakesh Gehlot (Licious)

REGULATIONS



REGULATIONS



COMPLIANCE



LAW



FOOD SAFETY

REPORT OF PFNDAI Regulatory Webinar ON VARIOUS REGULATION AMENDMENTS

Held Virtually On 12th March 2021
At 3:00 Pm On Zoom Meeting Platform

AUTHOR
Ms Anuja Padte,
Food Scientist PFNDAI

Protein Foods & Nutrition Development Association of India (PFNDAI) organized a Regulatory Webinar on Various Recent Regulation Amendments on 12th March 2021.

Dr Jagadish Pai (Executive Director at PFNDAI) welcomed everyone including speakers, panellists and moderator giving a brief introduction on the session topic. Ms Swechha Soni, (Manager Food & Nutrition, PFNDAI) gave a warm welcome and invited the dignitaries of the session –

Moderator – Dr Jasvir Singh, Regulatory, Scientific & Government Affairs Lead, South Asia, IFF. Speakers - Ms Arti Gupta, Head Regulatory Affairs, Abbott; Dr Himanish Das, Associate Vice President QA, R&D, and Regulatory, Emami & Mr Vijay Gaur, Head Regulatory Affairs, Danone. Panelists- Ms Meenu Yadav, Technical Regulatory Affairs, Marico; Mr Kiran Desai, Regulatory Advisor - ProInsight Consultancy Services & Dr Parvati Hanamsagar, Assistant Manager - Global Regulatory Affairs & Product Compliance, Herbalife.

Dr Jasvir Singh gave his opening remarks and made a statement that there are too many changes coming

in the regulation and it is required to unlearn the old and learn the new in equal frequency.

The challenges in regulation are that learning new regulation is the easiest part but unlearning what was there already becomes a challenge at times.

Ms Arti Gupta gave an insight about the Food Safety and Standards for Infant Nutrition Regulation 2020 and mentioned that the final draft came out on 4th Dec 2020 is to be implemented from 1st July 2021 onwards. She touched upon the changes in regulations. She covered aspects such as what is the clear distinction between products meant for infant nutrition and mentioned the two new categories introduced in the new regulation namely “Food for infants based on traditional food ingredients” and “Food for the special medical purpose intended for infants”. Ms Gupta shared a slide on which there was information on what are the new requirements of the stringent nutrient ranges. She briefed about Vitamin B12 and other



nutrient advocacy. She summarised her talk by giving insight on the new sections- FSMP for infants including Low Birth Weight and Inborn Error of Metabolism.

Dr Himanish Das, presented his views on Food Regulations on Edible oil in

India - Challenges and Way Forward and gave a brief on the various aspects such as emergence of FSSAI – as umbrella of regulations & concept of food adulteration to Focus on Standards and Regulations. He also mentioned the harmonization of the global standards in many cases that has arisen in the last six to seven years particularly in case of food additives. Dr Das further briefed on the frequent changes of regulations & ambiguity in clauses.

He also spoke on the areas of improvement which included the following subtopics i.e. frequent changes on regulations – advert and claims regulations, blended oil regulation improvement on the food industry as a partner, constructive feedback from industry with due care, public analyst about regulations, more focus on food safety, adulteration than mislabelling/misbranding.

Mr Vijay Gaur spoke on the Health Supplements, Nutraceutical, FSDU, FSMP, functional foods, and novel foods regulations. He gave a brief background on the Nutraceutical and health supplement regulation. He stated that India has worked upon two-three years after a lot of deliberation with industry associations, and come out with a regulation in 2016 & have given two years to implement this regulation & was implemented since Jan 2018. He also explained the schedules in the regulation and their meaning. Mr Gaur further spoke on the requirements towards the Health Supplements & Nutraceutical and briefed on the amendment regulations of 2020. He further

mentioned about General Provision Inclusion of Food for Sportspersons in the category of Food for special dietary uses. He ended his talk by giving brief information on the challenges towards the Nutraceutical Regulation Draft Amendment Proposes Restrictions on FSDU Products Advertisement, Nutrients Tolerances, and Nutrient Allowance.

The presentations by the speakers were followed by a panel discussion



conducted by Dr Jasvir Singh on Various Regulation Amendments. The panelists for the session were Ms Meenu Yadav, Mr Kiran Desai, and Dr Parvati Hanamsagar. There were few questions taken by the moderator for the panel on different aspects such as

- Nutraceutical & Health Supplements – Difference between FSDU & FSMP, Why FSDU is not allowed to advertise.
- Infant Regulations- Benefits of Medium-chain triglycerides, Use of fish oil as DHA source, under what conditions are Food for Special Medical Purpose intended for Infants, Ingredients allowed in the hypoallergenic formula.
- Blended Oils- Difference between Blending & Admixture, blending of mustard oil, what is Multi sourced Edible oil.

The webinar ended with a vote of thanks to all the Honourable Speakers, panellists and the delegates by Ms Anuja Padte

Dr Parvati Hanamsagar



Mr. Kiran Desai



Dr Jagadish Pai



Frequent changes of regulations & ambiguity in clauses

hurriedly brings regulations for which industries faces huge problems.
In certain cases, feedback given by industry at draft stage are not considered before final notification.
The comparison table (year wise) for font size (mm) of blended edible oil:

	2016	2017
BLEND EDIBLE VEGETABLE OIL	Name and Nature of edible vegetable oil....% by weight	MULTI-SOURCE EDIBLE VEGETABLE OIL
Less than 1 litre	3	5
1 to 5 litre	4	5
More than 5 litre	10	10

times of changes in last five years. Involves cost and time and effort to comply. Laminate wastage.
Example: One artwork needs 8 cylinder change costing 1.6 Lakh per SKUs.

Ambiguity on font size of Name and Nature of edible vegetable oil....% by for 5 litre and above.
In March, 2021, it is "Multi Source Edible Vegetable Oil" & previously it was "Multi Sourced Edible vegetable oil". Spelling mistake?

Ms Arti Gupta

Ms Meenu Yadav

Dr Himanish Das

Dr Himanish Das

Ms Meenu Yadav

Ms Arti Gupta

Mr Vijay Gaur

Dr Jasvir Singh

REPORT OF NUTRITION AWARENESS ACTIVITY

with Juhu Municipal School



Virtually on Zoom Meeting Platform on
Monday 15th February 2021 at 12 pm

Supported by Vista Processed Foods.



AUTHOR
Ms Anuja Padte,
Food Scientist PFNDI

Ms.
Shilpa
Joshi
talked on
Adolesce

nt Nutrition. She explained what Adolescent means. She emphasised why nutrition is important during transition between childhood and adulthood. She interacted with students giving them information about the traditional food and modern foods; what the five food groups are and which type of nutrients are obtained by our body on consuming them. She also explained the functions of Nutrients and what the major roles are and from which foods they are obtained. She explained the importance of Green and Red Leafy Vegetables and told what a healthy meal should contain. She also gave some breakfast and snack tips to the students. She also emphasized on how bad is junk food for health and how to make smart food choices and shared some of the modified recipes which will be healthy.

After the talk, there was a question and answer round where Dr Pai and Ms Shilpa Joshi interacted with the students and answered some queries raised by the teachers.

Ms Deepa Raut, Teacher of Juhu Municipal School also expressed her views regarding healthy food choices and she mentioned about

some healthy foods/snacks that they can have in their lunchtime instead of the junk food like vada-pav, Chinese bhel, etc. and how these junk foods can cause illness on regular consumption.

After the Question and answer session was over, Dr J S Pai mentioned a book written by Ms Swechha Soni on Understanding Food and Nutrition and also requested Ms Deepa if they can teach students using the information given in the book.

Ms Swechha Soni told everyone about her book Understanding Food and Nutrition and is written for the students of early secondary school of 7th and 8th standard students as their syllabus contains topics related to Food and Nutrition. She mentioned that the book contains Basic information on Food and Nutrition, what are the daily nutrient requirements and some basic practices that children should adopt in their daily life to maintain a healthy lifestyle. Ms Soni mentioned that the book is written in a very simple language that will help the students to understand themselves by reading it.

Ms Ruby Sound, Registered Dietician also joined the webinar mid-way and expressed that she was happy to be a part of such series of school activities done by PFNDI.

The session was concluded with a vote of thanks by Ms Swechha to the school, the coordinators and Ms Shilpa Joshi for giving such a wonderful presentation.

Protein Foods and Nutrition Development Association of India with the support of Vista Processed Foods organized a Digital School Nutrition Awareness Program at the Juhu Municipal School. It was organized for the students of 7th and 8th standard. The total number of students who participated was around 45.

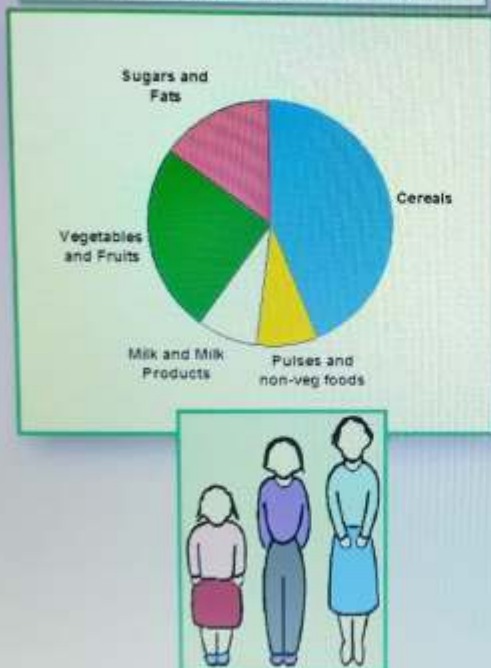
The sessions started with Dr Jagadish Pai, Executive Director of PFNDI welcoming the speaker Ms Shilpa Joshi, staff, and students of the school & briefed the students about PFNDI and about the nutrition awareness program.

Ms Swechha Soni, Manager Food and Nutrition introduced the speaker Ms Shilpa Joshi, Registered Dietician, National Vice President IDA & Diabetes Educator.

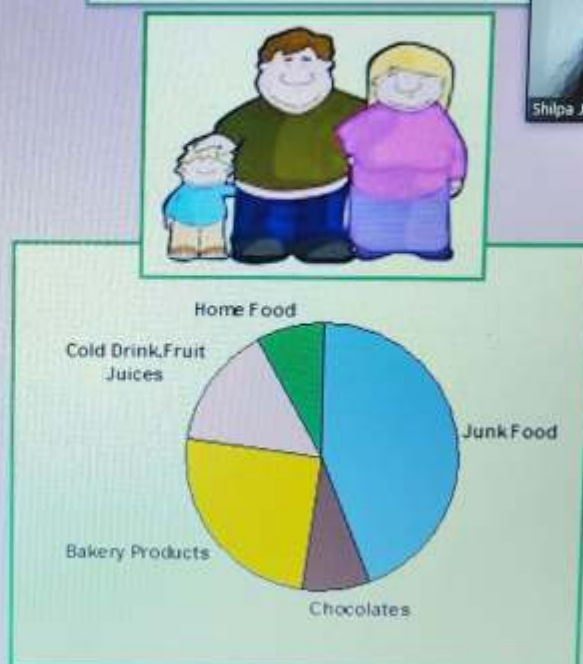
Recording

What Has Changed ???

Traditional 5 food groups



Modern (new) 5 food groups



 Pratap Sen	 Dr. Jagdish Tri	 Anuj Rawat	 Anoop Kumar	 Behan Anand
 Shilpa Joshi	 Swarnha Sen	Durgeshwari Dh...	Mariamma	Annu mandal
 Ruby Sound	 Abir Anand	Sumita	Masoom, ibrahim	Ayushman Deve...
 Mayuri Varde	 Aachal sunda bhat	 Huda etique shaikh	 Iqra Gousiya	 Seba qureshi
 Khushi	Mahak	Manasvi	Bhimashankar	Sathya



ADOLESCENT NUTRITION

Shilpa Joshi RD

Mumbai Diet and Health Centre

National Vice President: Indian Dietetic Association

National Secretary: All India Association for Advancing Research in Obesity

www.shilpajoshi.com

shlpjoshi@yahoo.com

How to make smart choices ???



Ms Deepa Raut

Dr Jagadish Pai



Ms Shilpa Joshi



REGULATORY ROUND UP



By

Dr. N. Ramasubramanian,
Director, VR FoodTech,
n.ram@vrfoodtech.com



Dear Readers

Please find below FSSAI notifications, advisories, orders, etc since the last round up. Please take all the care and stay safe.

Advisories and Orders,
Guidance Notes and Others

Food Authority has issued many concessions with regard to licensing, submission of returns, etc. Some of the salient ones are listed below

- Last date for the submission of Form D1 through FOSCOS has been extended to 30 June 2021. I understand that the online filing may require many documents and hence advisable to start as early as possible to avoid last minute rush.

- Food Business Operators (FB) , other than manufacturers, who have applied for licence or modification can proceed, based on their application reference number.
- Late fee, for not applying 30 days prior to the expiry of license, has been waived till 30 June 2021.

Food Authority has announced a policy to address the new application and modification of licenses and the delay involved in the process. A process involving auto generation of licenses, at different stages of approval, in case of no response from the licensing officers after a definite period of time, has been established.

This period of time depends on the kind of business. For example, if an FBO has answered all the queries raised by the officer and there has been

no response from the Authority for 61 days, then the license or the modification would be auto generated by the system. This is also applicable to the manufacturers of standard food but not proprietary foods.

Tenure of hygiene rating auditing agencies has been extended to 31.07.2021.

FSSAI website is updated with analytical methods for new parameters like Melamine, Mycotoxins and other parameters in different foods and food categories. It also introduces manual for analysis of alcoholic beverages, fortified foods, formulated supplement foods for children, etc.

A new list of products/Ingredients approved under the Non Specified regulation is published.

RESEARCH IN HEALTH & NUTRITION

Researchers suggest replacing wheat flour with chickpeas to tackle heart disease

23 Mar 2021 Nutrition Insight

There are “serious shortcomings” in the way dietary fibres are analyzed, according to researchers from the Quadram Institute and King’s College London. Their detailed analysis explores how different starch sources are digested when they are part of complex plant tissues. They have now created a basis on which new food ingredients can be developed to improve health.

By replacing common fibre sources such as wheat with pulses like chickpeas, the study authors say industry can help consumers prevent cardiovascular diseases. The study analyzed the different mechanisms fibre sources have on starch digestion, suggesting types of fibre – rather than quantity – play a significant role in dietary health.

The importance of fibre

Consuming adequate fibre is essential in combating diseases such as Type 2 diabetes, heart disease and stroke. However, most UK adults get much of their dietary fibre from processed foods containing a lot of starch, which can be easily digested into glucose. Overeating of the highly digestible forms of starch causes spikes in blood sugar levels and is associated with an increased risk of these diseases. To address this, the researchers investigated how tissues from chickpeas and durum wheat compared – plants that represent two different methods

of storing starch reserves in their seeds or grains.

Chickpeas vs. wheat

Study author Cathrina Edwards tells NutritionInsight that chickpeas are more effective in limiting the amount of starch digested.

“Chickpeas not only contain more dietary fibre than wheat, but the type of dietary fibre is different. The dietary fibre in chickpeas can protect starch (carbohydrate) from being digested by acting as a natural barrier that ‘blocks’ digestive enzymes from reaching the starch inside the plant cells.” In wheat, this barrier is thinner and more “leaky” and therefore less effective at limiting the digestion of starch, she explains.

“The dietary fibre ‘barrier’ is also affected differently by food processing treatment. If wheat is cooked, the dietary fibre breaks up into smaller pieces, but when chickpeas are cooked, the whole plant cells separate from each other, meaning that the dietary fiber (the plant cell wall) is still an effective barrier.”

Bread roll quality

The study, now published in Nature Food, combined microscopy techniques with advanced human digestion models to track the effects

of food processing on the different cell wall structures and assess how this changed digestibility. The findings show that dietary fibre structure has a serious impact on how digestible a product can be. This, therefore, highlights a pitfall in relying only on chemical analysis for characterizing different types of fibre, asserts Edwards. “It also provides an understanding of some of the mechanisms by which different sources of dietary fibre impact on nutrition and health.” The findings also provide a basis for developing new ingredients or food processing techniques that could deliver more of fibre-rich foods’ benefits. Adjusting the fibre source in products like bread, for example, could now prevent many of the health risks associated with wheat.

Researchers at Quadram have already developed PulseON, an ingredient made from chickpea using different types of milling and drying processes that, unlike normal flour milling, preserve the cellular structure and, therefore, starch resistance digestion. Meanwhile, a human trial showed that partly replacing wheat flour, made of refined carbohydrate, with PulseON in staple foods like white bread lowered the blood glucose response by 40 percent.

By Louis Gore-Langton





Tailored fermented milk products may lower blood pressure, reveals Mexican study

22 Mar 2021 Nutrition Insight

Fermented dairy foods tailored to modulate the gut could help reduce conditions such as hypertension, according to a new study published in the *Journal of Dairy Science*.

“New evidence suggests that antihypertensive fermented milks, including probiotics, bioactive peptides and exo-polysaccharides obtained from milk fermented with specific lactic acid bacteria, may modulate gut microbiota,” explains investigator Dr. Belinda Vallejo-Cordoba of the Center for Food Research and Development. “Therefore, there is potential for the development of tailor-made fermented milk with gut microbiota modulation and blood pressure-lowering effects,” adds Vallejo-Córdoba. Researchers from the Center for Food Research and Development and the National Technological Institute in Mexico report on previous hypertension studies and examine the potential pathways of gut modulation through antihypertensive

fermented milk.

The gut-hypertension link

Several studies have indicated that fermented milk may positively affect gut microbiota or provide antihypertensive effects, explains Vallejo-Cordoba. “However, few studies have shown a link between the antihypertensive effect of fermented milk and induced microbial balance (or eubiosis).” Vallejo-Cordoba remarks that in the past, the antihypertensive effect has been attributed mainly to angiotensin-I-converting enzyme inhibitory (ACEI) peptides with few studies attributing this effect to gut modulation.

The complexity of hypertension

Hypertension, commonly known as high blood pressure, arises due to a variety of contributing factors such as genetics and the environment. However, there is also evidence to support that gut microbiota may also have an effect on the development of hypertension. Gut dysbiosis – a marked decrease in richness and diversity of the gut microbiota – has been linked to different metabolic diseases, including hypertension, they write. Gut microbiota have been found to influence intestinal development, barrier integrity and function, body metabolism, the immune system and the central nervous system. A microbial imbalance affects metabolism, which may lead to metabolic-related

diseases, such as hypertension, obesity and Type 2 diabetes.

Keeping high blood pressure at bay

Hypertension is a risk factor for developing cardiovascular disease and is one of the leading causes of death globally. Efforts to reduce health risks due to high blood pressure include the UK’s voluntary national salt reduction program, which experts have recently called upon to strictly enforce. Hypertension has also been revealed as a risk factor for COVID-19 patients, with worse outcomes associated with the metabolic condition.

Edited by Missy Green

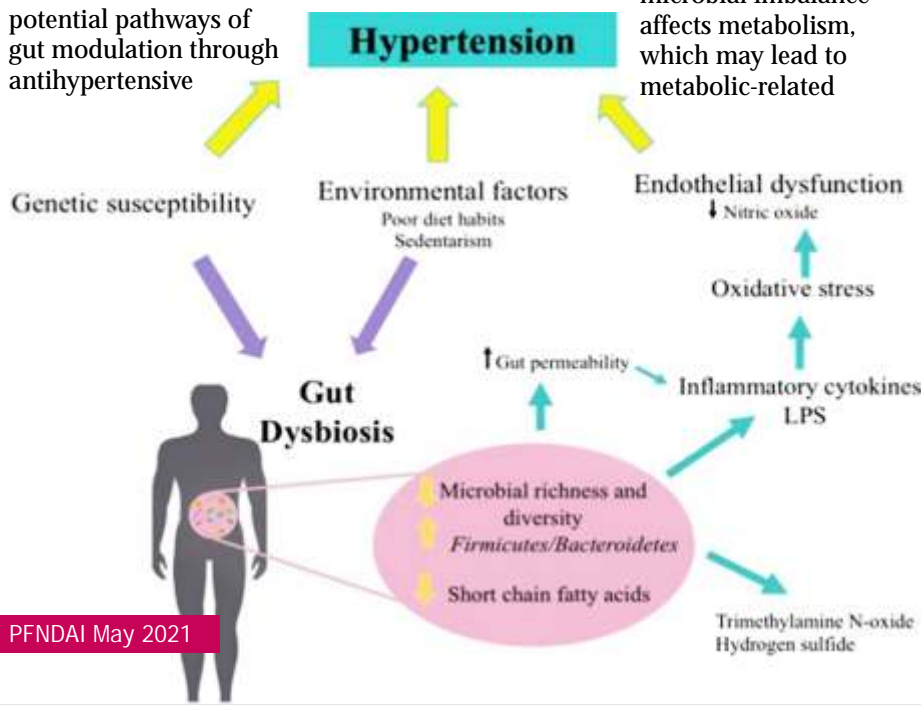


Oily fish twice a week reduces cardiovascular risks, say researchers

09 Mar 2021 Nutrition Insight

Consuming oily fish such as salmon at least twice per week could reduce the risk of cardiovascular disease (CVD) and death in high-risk individuals, according to a global study conducted at McMaster University, Canada.

Now published in *JAMA Internal Medicine*, the study analyzed the outcomes of fish consumption on over 191,000 individuals with and without vascular disease across six continents and 58 countries. The researchers found omega 3 fatty acids to be critical, associated with a lower risk of major CVD events such as heart attacks and strokes. The frequency of such events dropped by around 15 percent in high-risk people eating two servings of fish rich in omega 3 every week. “There is a significant protective benefit of fish consumption in people with cardiovascular disease,” remarks lead co-author Andrew



Mente. “This study has important implications for guidelines on fish intake globally. It indicates that increasing fish consumption and particularly oily fish in vascular patients may produce a modest cardiovascular benefit.” Oily fish like mackerel, trout, tuna and anchovies can contain up to 30 percent oil in their fillets.

Global investigation

The study authors pooled analyses of individual participant data from four separate cohort studies. Firstly, the analysis investigated data collected from 147,645 individuals (139,827 without CVD and 7,818 with CVD) from 21 countries in the Prospective Urban Rural Epidemiology (PURE). Alongside this, data from a further 43,413 patients with vascular disease in three other prospective studies from 40 countries were used. Adjusted hazard ratios were calculated by multilevel Cox regression separately within each study. Then they were pooled using random-effects meta-analysis. The analysis was conducted from January to June 2020. The findings indicated that a minimal fish intake of 175 g (approximately two servings) weekly is associated with a lower risk of major CVD and mortality among patients with prior CVD but not in general populations. Mente notes that people at low risk for CVD can still enjoy modest protection by eating fish rich in omega 3, but the health benefits are less pronounced than for high-risk individuals. The study authors are calling for further research on the consumption of oily fish in randomized trials of clinical outcomes among people with vascular disease.

Researching omega 3

The latest findings come amid a continued surge in consumer interest and industry research into the uses of fish for various health concerns. While consuming omega 3 as a supplement remains highly popular, experts believe many

people are critically uninformed about using it on an individual basis. Last year, industry players called for greater personalization and education on how to take the right ratio of omega 3 for different maladies. Meanwhile, Norwegian marine oil manufacturer Epax landed nearly US\$1 million to begin researching new uses for omega 3 fatty acids, particularly eye, skin and fertility. Currently, clinical data on omega 3 typically focus on fatty acids DHA and EPA, but there are also around 30 other lesser-known fatty acids in omega 3.

Edited by Louis Gore-Langton

Curcumin for brain health: Arjuna's turmeric extract shows neuro-protective potential in mouse study

08 Mar 2021 Nutrition Insight

The neuro-protective effect of Arjuna Natural's BCM-95 - a combination of turmeric extract and purified turmeric essential oil - is demonstrated in a new mouse study.

Published in the Hindawi BioMed Research International, the research pegs the nutraceutical solution as effective in mitigating the toxic effects of aluminium build-up in the brain. “The neuro-protective effect of curcumin is known, but mostly by in vitro studies. The ability of curcumin to cross the blood-brain barrier is very critical to provide benefits in the brain,” Dr. Benny Antony, joint managing director at Arjuna Natural, tells

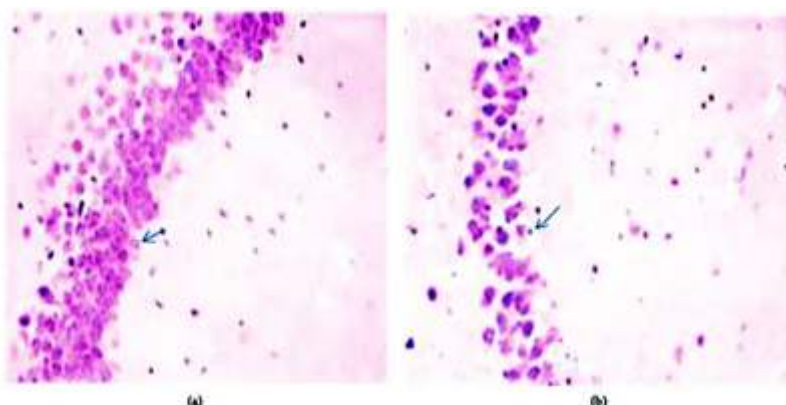


NutritionInsight. “This is the first study where the neuro-protective effect of curcumin is correlated with the presence of free curcumin level in the brain.” Notably, plasma and brain curcumin concentrations reached up to 14 times higher in the BCM-95 complex group than in the curcumin extract group. Bioavailability remains a key R&D hurdle for curcumin, as its oral administration is limited in its ability to reach target tissues.

Curcumin against aluminium neurotoxicity

Brain health can be compromised by exposure to neurotoxins, with aluminium being of particular concern. Major sources of aluminium exposure are cookware, cosmetics and pharmaceutical products. The study authors detail that the average consumer takes in approximately 10 mg of aluminium a day, of which up to 1 percent undergoes absorption. It can traverse through the blood-brain barrier and is believed to negatively impact the central nervous system, especially in older adults. The duration of exposure further leads to neurodegenerative diseases, says Antony, including Alzheimer's disease, Parkinson's disease and

multiple sclerosis. “As the burden of neurodegenerative diseases is growing day by day worldwide, more focused research is essential in preventing aluminium-induced neurotoxicity with curcumin,” he explains.



(A) Vehicle control showing normal cells.

(B) Aluminium chloride-treated showing shrunken, vacuolated and degenerated neurons.

Crucially, curcumin is known for its ability to bind to metals such as aluminium. "Therefore, it could offer neuro-protection from the metal's potentially toxic effects," explains lead researcher Dr. David Banji, professor and director of the postgraduate program in Toxicology at Jazan University in Saudi Arabia. "But poor absorption and low blood levels of free curcumin after oral intake pose a major limitation for delivering its full clinical benefits," he details. For example, curcumin's characteristic low solubility, rapid metabolism and quick elimination hampers its absorption into the bloodstream. "This is what spurred us to examine BCM-95 where curcumin, the key turmeric extract, is combined with the purified essential oil component of turmeric as a bioavailability enhancer." Significant health benefits observed. Turmeric extract and BCM-95 were orally given to lab mice at doses of 25 and 50 mg per kg body weight daily. A positive control group ran in parallel. Neurotoxicity was induced by injecting aluminium chloride (40 mg per kg daily), and the effect of the intervention was studied for 45 days. After the 45 days, the BCM-95 complex showed it reversed the cognitive impairment exhibited by aluminium exposure. Besides enabling more plasma bioavailability, the combination upregulated the expression of antioxidants, thereby minimizing microglia activation and subsequent neuronal damage. Supplementation improved spatial learning and memory significantly, say the study authors. Also, it demonstrated abilities to prevent neurotoxicity significantly better than standard turmeric extracts. "Standard curcumin is not able to prevent neurotoxicity and also unable to deliver free curcumin in the brain. Even though both contain curcumin, BCM-95 is the true bioavailable curcumin providing clinical benefits," says Antony. Antony previously shared his insights with NutritionInsight on the traceability trend last year and Arjuna Natural's organic BCM-95

launch.

By **Anni Schleicher**

The fitter you are the better you burn fat

March 16, 2021 Science Daily

Females who are fit and healthy tend to burn more fat when they exercise than men, according to new research from a team of sports nutritionists.

The research, comprising two new studies from academics led by the University of Bath's Centre for Nutrition, Exercise & Metabolism, analysed the factors that most influenced individuals' capacity to burn body fat when undertaking endurance sports. How the body burns fat is important to all of us for good metabolic health, insulin sensitivity and in reducing the risk of developing Type II diabetes. But, for endurance sport competitions, such as running or cycling, how the body burns fat can make the difference between success and failure. Previous research from the same team has shown how, for endurance athletes competing in distance events, the body's carbohydrate stores deplete quickly when exercising. This means that that an athletes' ability to tap into their fat reserves to fuel them on becomes essential to their performance. The first study, published in the International Journal of Sport Nutrition & Exercise Medicine, involved 73 healthy adults aged 19-63 (41 men; 32 women). It tested the lifestyle and biological factors for optimal fat burning by asking participants to take part in a cycling fitness test and measuring key indicators. Their results found that females and those who were physically fitter, right across the age ranges, burnt fat more efficiently when exercising. The second related paper, published in the journal Experimental Physiology, took this a stage further to explore what molecular factors in our muscles and fat tissue determine how fat is burnt. This experiment

involved the researchers taking fat and muscle biopsies from participants to analyse how differences in the proteins in fat and muscle tissue might affect their ability to burn fat.

It found that the proteins in muscle that are involved in breaking down stored fat into the smaller fatty acids, and proteins involved in transporting those fatty acids into the mitochondria in muscle (the powerhouse of the cells) consistently correlated with a greater ability to burn fat. The molecular factors explored did not explain why females burned more fat than males, however. Lead author on both papers, Ollie Chrzanowski-Smith from the University of Bath explains: "Our study found that females typically have a greater reliance upon fat as a fuel source during exercise than males. Understanding the mechanisms behind these sex differences in fuel use may help explain why being female seems to confer a metabolic advantage for insulin sensitivity, an important marker of metabolic health." The researchers note that the ability to burn fat as a fuel appears to protect against future weight gain, ensuring good weight management. However, they caution that the body's ability to burn fat should not be equated with an ability to lose weight. Losing weight is primarily produced by an energy deficit (i.e. consuming fewer calories than we expend). For weight loss, in particular where individuals might be overweight, they stress the importance of diet and exercise. Dr Javier Gonzalez, also from the University of Bath's Department for Health, added:



"Weight management is mainly about energy balance, so to lose weight we need to eat fewer calories than we expend through our resting metabolism and physical activity. However, people with a higher ability to burn fat as a fuel seem to be somewhat protected against future weight gain, which might be related to how fat burning affects food intake and energy expenditure. "Ultimately, a greater capacity to burn fat as a fuel has potential benefits for endurance athletes, by delaying the time point when they run out of precious carbohydrate stores."

Supplements may protect those with low vitamin D levels from severe COVID-19

Study finds more than half of patients with low vitamin D do not receive supplements

March 21, 2021 Science Daily

Patients with low vitamin D levels who are hospitalized for COVID-19 may have a lower risk of dying or requiring mechanical ventilation if they receive vitamin D supplementation of at least 1,000 units weekly, according to a study presented virtually at ENDO 2021, the Endocrine Society's annual meeting.

"Given how common vitamin D deficiency is in the world and the United States, we believe that this research is highly relevant right now," said co-author Sweta Chekuri, M.D., of Montefiore Health System and Albert Einstein College of Medicine in the Bronx, New York. Research has shown that vitamin D supplementation can prevent inflammation in other respiratory diseases, but there have been limited studies examining the role of vitamin D supplementation in COVID-19. The purpose of the

study was to determine whether being supplemented with vitamin D before being admitted to the hospital with COVID-19 resulted in less severe COVID-19 disease in patients with a low vitamin D level. The researchers studied 124 adult patients with low vitamin D that was measured up to 90 days before their admission for COVID-19. They compared the patients who were supplemented with at least 1,000 units of vitamin D weekly to those who had not received vitamin D supplements in terms of whether they were mechanically ventilated or died during admission.

They found that patients who were supplemented were less likely to be mechanically ventilated or to die following admission, though the finding wasn't statistically significant (37.5 percent of patients who were not supplemented vs. 33.3 percent of those who were) They also found that more than half of those who should have been supplemented were not. "Though we weren't able to show a definitive link to severe COVID-19, it is clear that patients with low vitamin D should receive supplementation not only for bone health, but also for stronger protection against severe COVID-19," said co-author Corinne Levitus, D.O., of Montefiore Health System and Albert Einstein College of Medicine. "We hope this research will encourage clinicians to discuss adding this supplement with their patients who have low vitamin D, as this may reduce the odds of people developing severe COVID-19."

A study published in the Endocrine Society's Journal of Clinical Endocrinology & Metabolism last fall found over 80 percent of 200 COVID-19 patients in a hospital in Spain had vitamin D deficiency.

Physical activity helps curb low-grade inflammation in children

Low physical activity, unhealthy diet quality, and being overweight is the most unfavourable combination

March 23, 2021 Science Daily

According to a recent Finnish study, accumulating more brisk and vigorous physical activity can curb adiposity-induced low-grade inflammation. The study also reported that diet quality had no independent association with low-grade inflammation.

The findings, based on the ongoing Physical Activity and Nutrition in Children (PANIC) Study conducted at the University of Eastern Finland, were published in the European Journal of Sport Science. The study was made in collaboration among researchers from the University of Jyväskylä, the University of Eastern Finland, the Norwegian School of Sport Sciences, and the University of Cambridge.

Low-grade inflammation is linked to many chronic diseases, but exercise can curb it

Long-lasting low-grade inflammation increases the risk for type 2 diabetes and cardiovascular diseases. Being overweight and obese contributes to low-grade inflammation, but little is still known about the role of lifestyle in curbing low-grade inflammation since childhood.

"Our study showed that children who were physically more active and less sedentary had a healthier inflammatory profile than children who were physically less active," explains Dr. Eero Haapala from the Faculty of Sport and Health Sciences at the University of Jyväskylä. "However, our results suggest that the positive effects of high levels of vigorous physical activity and low levels of sedentary time on low-grade inflammation are partly explained by their positive effects on body composition."



Low physical activity, unhealthy diet quality, and being overweight is the most unfavourable combination

Researchers found unhealthier inflammatory profile particularly in children with the lowest levels of physical activity, poorest diet quality and the highest body fat percentage. "The key message of our results is that increasing physical activity and reducing sedentary time are key in preventing low-grade inflammation since childhood," says Haapala. "They would be particularly important for overweight children." The study looked at the associations between physical activity, sedentary time, diet quality, body fat content, and low-grade inflammation in 390 children aged 6 to 8 years. Physical activity and sedentary time were measured by a combined heart rate and movement sensor and body composition with a DXA device. Low-grade inflammation was assessed using biomarkers measured from blood samples.

Green leafy vegetables essential for muscle strength

March 24, 2021
Science Daily

Eating just one cup of leafy green

vegetables every day could boost muscle function, according to new Edith Cowan University (ECU) research.

The study, published today in the *Journal of Nutrition*, found that people who consumed a nitrate-rich diet, predominantly from vegetables, had significantly better muscle function of their lower limbs. Poor muscle function is linked to greater risk of falls and fractures and is considered a key indicator of general health and well being. Researchers examined data from 3,759 Australians taking part in Melbourne's Baker Heart and

Diabetes Institute AusDiab study over a 12-year period. They found those with the highest regular nitrate consumption had 11 per cent stronger lower limb strength than those with the lowest nitrate intake. Up to 4 per cent faster walking speeds were also recorded. Lead researcher Dr Marc Sim from ECU's Institute for Nutrition Research said the findings reveal important evidence for the role diet plays in overall health. "Our study has shown that diets high in nitrate-rich vegetables may bolster your muscle strength independently of any physical activity," he said. "Nevertheless, to optimise muscle function we propose that a balanced diet rich in green leafy vegetables in combination with regular exercise, including weight training, is ideal." Muscle function is vital for maintaining good overall health, especially bone strength later in life. "With around one in three Australians aged over 65 suffering a fall each year, it's important to find ways of

preventing these events and their potentially serious consequences," said Dr Sim.

Go for green
While leafy greens may be some of our least favourite vegetables, they

could be the most important, according to Dr Sim. The research found nitrate-rich vegetables, such as lettuce, spinach, kale and even beetroot, provided the greatest health benefits. "Less than one in ten Australians eat the recommended five to six serves of vegetables per day," Dr Sim said. "We should be eating a variety of vegetables every day, with at least one of those serves being leafy greens to gain a range of positive health benefits for the musculoskeletal and cardiovascular system." "It's also better to eat nitrate-rich vegetables as part of a healthy diet rather than taking

supplements. Green leafy vegetables provide a whole range of essential vitamins and minerals critical for health."

Building knowledge

The study, collaboration with Deakin University's Institute of Physical Activity and Nutrition and the Baker Heart and Diabetes Institute, builds on Dr Sim's previous research into nitrate and muscle function in older women. It also adds to growing evidence linking vegetables with cardiovascular health, including a recent ECU study into cruciferous vegetables and blood vessel health. Dr Sim said the next step of his research will be exploring strategies to increase leafy green vegetable consumption in the general population. "We are currently recruiting for the MODEL Study, which examines how knowledge of disease can be used to prompt people in making long-term improvements to their diet and exercise," said Dr Sim.

Should you take fish oil? Depends on your genotype

March 25, 2021 Science Daily

Fish oil supplements are a billion-dollar industry built on a foundation of purported, but not proven, health benefits.

Now, new research from a team led by a University of Georgia scientist indicates that taking fish oil only provides health benefits if you have the right genetic makeup. The study, led by Kaixiong Ye and published in *PLOS Genetics*, focused on fish oil (and the omega-3 fatty acids it contains) and its effect on triglycerides, a type of fat in the blood and a biomarker for cardiovascular disease.



"We've known for a few decades that a higher level of omega-3 fatty acids in the blood is associated with a lower risk of heart disease," said Ye, assistant professor of genetics in the Franklin College of Arts and Sciences. "What we found is that fish oil supplementation is not good for everyone; it depends on your genotype. If you have a specific genetic background, then fish oil supplementation will help lower your triglycerides. But if you do not have that right genotype, taking a fish oil supplement actually increases your triglycerides." Ye's team, including first author and graduate student Michael Francis, examined four blood lipids (fats) -- high-density lipoprotein, low-density lipoprotein, total cholesterol and triglycerides -- that are biomarkers for cardiovascular disease.

The data for their sample of 70,000 individuals was taken from UK Biobank, a large-scale cohort study collecting genetic and health information from half a million participants. The team divided the sample into two groups, those taking fish oil supplements (about 11,000) and those not taking fish oil supplements. Then they performed a genome-wide scan for each group, testing for 8 million genetic variants to compare. After running over 64 million tests, their results revealed a significant genetic variant at gene GJB2. Individuals with the AG genotype who took fish oil decreased their triglycerides. Individuals with the AA genotype who took fish oil slightly increased their triglycerides. (A third possible genotype, GG, was not evident in enough study volunteers to draw conclusions.) Determining your genotype is not as far-fetched as it sounds, thanks to direct-to-consumer genetic testing companies. Companies may not report that specific genetic variant yet, but a tech-savvy consumer should be able to download the raw data and look at the specific position to discover the genotype, according to Ye. The ID for the variant is rs112803755 (A>G).

The study's findings may also shed light on previous trials, most of which found that fish oil provides no benefit in preventing cardiovascular disease. "One possible explanation is that those clinical trials didn't consider the genotypes of the participants," Ye said. "Some participants may benefit, and some may not, so if you mix them together and do the analysis, you do not see the impact." Now that Ye has identified a specific gene that can modify an individual's response to fish oil supplementation, his next step will be directly testing the effects of fish oil on cardiovascular disease. "Personalizing and optimizing fish oil supplementation recommendations based on a person's unique genetic composition can improve our understanding of nutrition," he said, "and lead to significant improvements in human health and well-being."

Study reveals 'striking' uptake of early peanut introduction among Australian families with infants

By Mary Ellen Shoup 01-Mar-2021
- Food Navigator USA

In Australia, the practice of introducing peanuts into an infant's diet early on (before 12 months of age) has increased more than 3x in 2019 compared to 2007-2011 data, according to research led by the Murdoch Children's Research Institute (MCRI) in Australia and presented at the American Academy of Allergy, Asthma & Immunology Virtual Annual Meeting.

Australian infant feeding guidelines were updated in 2016 to recommend introducing peanuts before 12 months for all infants. In its recent study, MCRI set out to

analyze what impact the guideline changes have had on peanut allergies. The US recently published its early allergen introduction guidelines as part of the USDA 2020-2025 Dietary Guidelines. The new set of guidelines included a section on introducing infants to potentially allergenic foods including peanuts. The USDA also recommended that for infants at high risk of peanut allergy (i.e. infants that have severe eczema, egg allergy, or both) to introduce age-appropriate, peanut-containing foods as early as 4- to 6-month-old. "The recent implementation of new Australian infant feeding guidelines in 2016, which do not recommend screening before peanut introduction were followed by a striking shift toward earlier peanut introduction in the population. Most parents are now introducing their infants to peanut and egg by 12 months of age, which is much earlier than a decade ago," wrote the study authors. To determine if national

dietary guidelines which recommended early allergy introduction had any impact on the prevalence of peanut allergy in infants, MCRI researchers compared data from 1,933 infants enrolled in the EarlyNuts study in 2018-2019 to the 5,276 infants recruited in the HealthyNuts study in 2007-2011. The research found the peanut allergy prevalence in 2018-

2019 was 2.6% compared to 3.1% in 2007-2011. Researchers noted how data collection from participants is ongoing for the EarlyNuts study, and it would have a full picture of the results once it receives the results from the second half of participants. "We will be able to assess the important question of the effect of earlier introduction of allergenic foods on challenge-proved food allergy prevalence in the population at completion of the current EarlyNuts study," said the study's researchers.



Lead author of the study and MCRI PhD candidate, Victoria Soriano also noted a striking shift toward earlier peanut introduction – 89% of parents in the study reported introducing their infant to peanuts by age 1 in 2019 compared to 28% in 2007-2011. Conversely, peanut allergy prevalence in 2018-2019 among infants who did not consume peanut until 12 months or later was 4.8%. “We will be able to assess the important question of the effect of earlier introduction of allergenic foods on challenge-proved food allergy prevalence in the population at completion of the current EarlyNuts study,” noted researchers. Despite results of the study showing a downward trend in peanut allergy prevalence among a relatively small sample of infants, MCRI’s Dr. Jennifer Koplin recommends that further investigation is needed before drawing any sweeping conclusions about the efficacy of early allergen introduction.

According to one study, Australia has the highest rate of peanut allergies with roughly one in 10 infants and one in 20 children up to five-years-old being allergic. In the US, non-profit group FARE (Food Allergy Research & Education) estimates that one in 13 children has a food allergy with peanuts, milk, shellfish, and tree nuts reported as the most common food allergies. “The safety of early peanut introduction at home is of significant interest to parents as well as health professionals around the world,” MCRI Dr. Jennifer Koplin said. “More research must be done to look closer at these trends to help us understand how well early introduction to peanut works to prevent peanut allergies in real-life situations.”

Why HMOs are critical to infant nutrition

01-Mar-2021 Last updated on 26-Feb-2021 at 12:09 GMT

The first 1,000 days of an infant’s life are critical. In that window from conception to a child’s

second birthday, the availability of certain nutrients has lasting effects on everything from the brain to the immune system. That understanding has reinforced the need for infant formula that provides all the benefits of breast milk.

DSM is responding to that need by investing in human milk oligosaccharides (HMOs) to eliminate one of the major differences between breast milk and infant formula. Breast milk is recognized as the best source of nutrition for infants by the World Health Organization and other experts. However, not everyone can breastfeed, for a range of reasons, creating a need for infant formula that delivers the functional benefits of breast milk. Efforts to achieve that goal have identified HMOs as one of the main differences between traditional infant formula and breast milk. The difference could be important. Although HMOs are non-digestible carbohydrates with little nutritional value for infants, they are the third largest solid component of breast milk after lactose and lipids. Researchers have identified 200 different HMOs in human milk. Cows milk contains a far smaller, less diverse set of oligosaccharides. Research into the role HMOs play in infant nutrition began in the 1930s but breakthroughs are still being made. In recent years, researchers have linked HMOs to protection against diarrheal diseases, potentially because they boost pathogen clearance, and promotion of a gut microbiota dominated by Bifidobacteria. Other studies suggest HMOs aid healthy digestion and help the gut mature.

Interactions between HMOs and the gut microbiota could explain some of the benefits of breast milk. Studies have linked the milk-orientated microbiome (MOM) seen in breastfed infants with lower risk of infection in infancy, as well as reduced risk of conditions including obesity

and Crohn’s disease in adulthood. As Bifidobacteria are a defining element of the MOM, the promotion of those species by prebiotic HMOs may underpin the benefits of breast milk. HMOs affect intestinal epithelial cell gene expression. In acting on gene expression, HMOs directly modulate immune responses, adding to the indirect effects they cause by changing the microbiome. The established link between the gut and the brain, known as the gut-brain axis, shows the effect of HMOs on the microbiome could have far-reaching consequences. Similarly, HMOs are broken down in the gut into metabolic products such as sialic acid, a promoter of brain development. A still-emerging body of early-stage evidence supports the hypothesis that HMOs positively impact brain health and function. Notably, studies have linked HMOs to positive effects on learning and memory, neurodevelopment and anxiety in animal models and put the gut-brain axis at the heart of mechanistic explanations of the outcomes.

Clinical trials have generated encouraging results, showing HMOs to be safe and well tolerated and linking their use to significant reductions in bronchitis and lower respiratory tract infection. The findings are important given evidence infant formula use is associated with significantly higher rates of lower respiratory tract infection in Asia. Better infant formula could have a particularly big impact in Asian countries. Thirty percent of infants aged zero to five months are exclusively breastfed in East Asia and the Pacific, compared to a global average of 44%.



FOOD SCIENCE & INDUSTRY NEWS

Less is more: Epogee's modified oil EPG cuts calories from fat in F&B by 92%

04 Mar 2021 Nutrition Insight

US-based Epogee has developed an alternative fat ingredient designed to help curb the world's growing obesity epidemic. Esterified propoxylated glycerol (EPG) is a GMO-free, modified rapeseed oil that enables F&B manufacturers to "dramatically" lower calories.

"Reducing daily caloric intake will always be in the best interest of the consumer. EPG allows them to enjoy their favourite foods with up to 45 percent fewer total calories," Tom Burrows, CEO of Epogee tells NutritionInsight. It is touted as the only technology available today that can cut 92 percent of calories from fat for each unit of fat replaced, without compromising on F&B taste, texture or functionality.

Bypassing digestion

EPG looks, feels, tastes and cooks like fat because it's made from fat, explains Burrows. "It is made by splitting GMO-free rapeseed oil into its components – glycerin and fatty acid – and then inserting a food-grade propoxyl link and reconnecting the components." The component used to modify the oil prevents digestion and, therefore the release of calories.

New tool to tackle obesity

Sarah Malenich, senior director of marketing at Epogee highlights that the innovation is "an absolute game-changer" for innovating new F&B products. "COVID-19 has heavily influenced the food industry as consumers demand healthier food and beverage options," she affirms.

New research from Kerry reinforces that consumers are looking for more products that contribute to well-being, specifically through functional foods and beverages. "Now it is possible for manufacturers to address consumer health concerns such as calorie control and weight management and help solve the obesity problem," adds Malenich.

Formulation insights

The ingredient works as a 1:1 fats and oils replacer, making the alternative easy to incorporate into existing products.

"Because EPG is made from fat, unlike fat substitutes that were based on sucrose and/or starch molecules, EPG does not require the addition of sugar or other ingredients, like starches, gums, binders, preservatives and flavour enhancers currently used in low-fat and low-calorie foods," says Malenich. "This means manufacturers can make great tasting better-for-you foods with shorter ingredient labels, without compromising the taste, texture or functionality."

Calorie counting during COVID-19

Obesity concerns have come increasingly into focus during the pandemic, as the link between obesity and worse COVID-19 outcomes have been flagged. During social distancing measures and travel bans, consumers have also been less active. At the same time, demand for indulgent products such as frozen desserts and ice cream jumped in North America and Europe during the pandemic. The fat alternative can be used in a wide variety of applications, including indulgent ones such as ice cream. In the US, Nick's ice cream features EPG in its low-calorie ice cream brand.

By Missy Green, with additional reporting from Kristiana Lalou

Animal-free bioengineering: E. coli modified for fast chondroitin sulphate manufacturing

03 Mar 2021 Nutrition Insight

US scientists have reprogrammed E. coli to produce chondroitin sulphate, a polysaccharide molecule used in pharmaceuticals and nutraceuticals.

Chondroitin sulphate is best known as a joint health dietary supplement to aid arthritis and is currently sourced from cow trachea. A new Nature Communications-published study shows it is possible to produce these polysaccharides in an animal-free fashion while remaining structurally the same. Speaking with NutritionInsight, study co-author Mattheos Koffas reveals the next steps will be to make other animal-natural products, such as other versions of chondroitin and pig intestines-derived heparin. Dermatan sulphate and keratan sulphate are also on the horizon. "This paper provides the proof of concept that all these molecules are within reach to be produced using bioengineering approaches. We strongly believe that their production is feasible using metabolic engineering and synthetic biology in an economically competitive method." Consumer interest in health, sustainability and ethics continues to push development for more sophisticated F&B and supplement alternatives. In particular, Innova Market Insights observes how lab-grown foods are disrupting the industry with acceleration from animal welfare interests.

Reducing process costs

E. coli fermentations and their scale-up are “nothing new,” Koffas continues. “Great progress” has been made in decreasing their cost and accelerating the scale-up of a lab strain to thousands of liters of fermented products. Koffas and his colleagues from the Rensselaer Polytechnic Institute, US, created a cost-efficient process that could become on-par cost-wise with pharmaceutically grade sulfated glycosaminoglycans (GAGs), such as the ones used as anticoagulants or for drug delivery applications. Rensselaer Polytechnic Institute has filed for a patent for its technology, which could sell for an estimated US\$10,000 per kg. “I realize that sounds astronomical but it is in the same range of current prices of pharmaceutical grade sulphated GAGs,” Koffas clarifies. Two companies have already expressed commercial interest.

Ramping up production

Although the modified *E. coli* produce a relatively small yield – on the order of micrograms per litre – they thrive under ordinary lab conditions, offering a robust proof of concept.

In terms of accelerating the process, the researchers can achieve maximum litres in less than 48 hours, unlike currently used pharmaceutically grade GAGs that take weeks to extract and purify. “However, it is still not cost-competitive with crude GAGs, bulk molecules directly extracted from the animal tissue,” Koffas details. “If we can increase the production titre 100 fold with a simple back-of-the-envelope calculation, we should be able to have a biosynthetic production method that will be competitive with current methods of crude GAG production.”

Promising sugar molecules

Polysaccharides are long sugar chains that are “far more complicated” to produce and modify than simple sugar molecules. There is a great market for them, according to Koffas, both as

nutraceuticals (chondroitin sulphate) and pharmaceuticals (heparin and pharmaceutical-grade chondroitin sulfate). “There are also several other similar molecules, such as dermatan sulphate, that has demonstrated even anticoagulant properties, and keratan sulphate,” Koffas explains.

“However, much less is known about the biological properties of these molecules since they have limited bioavailability and are more difficult to produce. Our technology will allow us to access this chemical space as well.”

Overcoming R&D challenges

Genetically engineered *E. coli* is used to make a long list of medicinal proteins, but it took years to coax the bacteria into producing even the simplest in this class of sulphated GAGs.



“It’s a challenge to engineer *E. coli* to produce these molecules. We had to make many changes and balance those changes so that the bacteria will grow well,” Koffas elaborates. Three major steps were involved in this process:

- Introducing a gene cluster to produce an unsulphated polysaccharide precursor molecule.
 - Engineering the bacteria to make an ample supply of an energetically expensive sulphur donor molecule.
 - Introducing a sulfurtransferase enzyme to put the sulphur donor molecule onto the unsulphated polysaccharide precursor molecule.
- “The sulfotransferases are made by

much more complex cells,” Koffas says. “When you take them out of a complex eukaryotic cell and put them into *E. coli*, they’re not functional at all. You basically get nothing.”

The “particularly difficult challenge” of working with sulfotransferase enzymes required two different approaches to achieve the functional expression of the recombinant sulphotransferases. “The first one, which is more traditional, was by testing different truncation versions of the enzymes – removing the N-terminus that is responsible for attachment to the Golgi could potentially improve expression,” Koffas reveals. Then, this was fused with previously used proteins to achieve functional expression of eukaryotic enzymes. The second approach was to use computational modelling to identify mutations that can potentially improve the recombinant enzymes’ stability and solubility.

The future of bioengineered nutraceuticals

Ultimately, the Rensselaer research opens new avenues in several fields, such as therapeutics and regenerative medicine. These disciplines need a substantial supply of specific molecules whose production is lost with aging and diseases. Co-author Robert Linhardt adds engineering *E. coli* to produce the drug has many advantages over the current extractive process or even a chemo-enzymatic process. “If we prepare 1 g of chondroitin sulfate chemoenzymatically, it takes a month to make. If someone calls us and says they need 10 g, we will have to spend another month to make 10 g,” Linhardt states. “Whereas with the fermentation, you throw the engineered organism in a flask and you have the material: whether it’s one, ten or a thousand grams. This is the future.”

By Anni Schleicher



Spain backs industry partnership on personalized nutrition for brain health

30 Mar 2021 Nutrition Insight

Natac Biotech is teaming up with Precision For Health (P4H) and public research institute IMDEA Food on a new project called Health4Brain.

Set to last three years, the Spanish partnership will investigate how personalized nutrition can impact cognitive function – which is especially important for the elderly. P4H will create personalized recommendations for nutrition products based on people's genetic profiles, taking the cognitive pattern-nutrition interaction into account. These products will then be developed by Natac. Finally, IMDEA Food will carry out nutrigenetic studies on the products, both in vitro to determine their mechanism of action and in humans to validate their efficacy. Health4Brain is funded by the Spanish Ministry for Science and Innovation. Overall, the project will have a budget of €542,107.02 (US\$636,210), of which €194,419.50 (US\$228,168) corresponds to a subsidy, and €286,365.88 (US\$336,074) is assistance in the form of loans for businesses.

Helping the elderly

Overall, the Health4Brain project aims to make the most of “omic”

technologies and knowledge in applying precision nutrition to improve the efficacy of nutritional strategies and products for optimizing cognitive capacity. Cognitive function includes multiple mental abilities related to thinking, language, memory, learning, and even decision-making and problem-solving. While this is important throughout all stages of life, it is also a crucial indicator of elderly adults' ability to maintain independence. IMDEA notes that cognitive impairment is estimated to impact 18.5 percent of Spain's over-65 population. Women have significantly higher prevalence rates than men. Therefore, maintaining cognitive function can be a key way to improve the quality of life for the elderly population, as well as slashing associated health care costs. These generational differences are part of the reason why US researchers are calling for diets for mental health to be tailored by age and sex. Health4Brain is part of the Collaboration Challenges 2019 program, run by the Spanish Ministry for Science and Innovation.

The role of personalization

It remains to be determined precisely what the causes and mechanisms involved in cognitive decline are. However, it seems that genetics and diet affect brain development and function in a significant way, according to IMDEA. For example, it notes that an inadequate diet can have a direct impact on cognitive function since the increase in processed food – marked by a lack of antioxidants and vitamins – or an unbalanced diet limits the lack of certain nutrients, vitamins and other healthy bioactive compounds. Furthermore, research in recent years has been increasingly suggesting that certain people may be more in need of certain nutrients, as determined by their genetics.

Edited by Katherine Durrell

“Calming the cytokine storm”: 24 Hour Supplement releases immunity offering

30 Mar 2021 Nutrition Insight

US-based 24 Hour Supplement is launching a product branded Immunity, formulated from a proprietary molecular complex called TurmiZn-OS.

It uses zinc to bond the turmeric-based oxidative stress remedy curcumin Tetrahydrocurcumin, a water-soluble metabolite known to “scavenge” free radicals. Free radicals are oxygen-containing molecules that can cause large chain chemical reactions – oxidation – in the body because they react easily with other molecules. When combined, each of Immunity's three ingredients is designed to work synergistically to support the body's defense against various pathogens while activating an offensive response to fight free radicals, ultimately calming the cytokine storm, says the company. 24hr Supplement scientists report lab studies demonstrating that TurmiZn-OS is five times more readily absorbed and 65 times better at eliminating free radicals than curcumin alone.



Creating a “natural army”

The immune system can become flooded in a cytokine storm for a number of reasons, says 24 Hour Supplement. Whether in the form of stress, viruses, bacterial infections or autoimmune conditions, a hyper-activated cytokine release can occur, which causes intracellular signalling confusion and it can lead to inflammation, oxidative stress and inhibited overall immune response.

Rajiv Lall, founder and CEO of 24hr Supplement, says Immunity contains a breakthrough in turmeric formulation. “TurmiZn-OS is the heart of this formulation and is the first, we believe, to maximize the health properties found in turmeric and solve its problems with solubility, stability and bioavailability.”

Lall is also co-author of *Nutraceuticals: Efficacy, Safety, and Toxicity*, a comprehensive encyclopedia on “virtually every” natural ingredient used in supplements, including their mechanism of action, safety, toxicity and interactions with other therapeutic drugs.

“In these times, our immune system is under attack like never before, so we created a natural army that can be taken every 24 hours to deliver an enhanced way to support the immune system, normalize oxidative stress and support many other biological and neurological functions.”

Immunity

Besides TurmiZn-OS, Immunity contains seven other ingredients:

- **Black Elderberry:** A phytonutrient supporting immune function and promoting a healthy respiratory system.
- **Selenium:** A micronutrient that helps fight cellular damage.
- **Vitamin D3:** Touted as building up immunity in times of stress.
- **Vitamin C:** Ascorbic Acid, an antioxidant for maintaining production of white blood cells.

- **Phycocyanin:** A Spirulina extract that provides support by helping to maintain normal interferon levels during oxidative stress.
- **Ferulic acid:** An organic compound with antioxidant properties that support the body during stress.
- **Piperine:** Black pepper extract that helps the body by increasing bioavailability of nutraceuticals like curcumin.

Additionally, 24hr Supplement's Immunity is manufactured in the US, is 100 percent natural, soy-free, gluten-free, dairy-free, and contains no preservatives. Innova Market Insights recently pegged “In Tune with Immune” as a top trend for 2021, noting that 54 percent of global consumers claimed to have spent time educating themselves on ingredients and procedures that could boost their immune health in the wake of concerns over COVID-19.

By Louis Gore-Langton

Dairy is making its debut in the mental wellness space with milk phospholipids

01-Mar-2021 Food Navigator USA

Picture a room with a large table in the middle of it. Sitting around the table are all the wellness product categories that are geared toward mental wellbeing that you can think of. There's CBD, melatonin and adaptogens along with holistic products and vitamin supplements, and they've all been sitting there for along time. But now, dairy is pulling up a chair.

With new innovations from NZMP, Milk Phospholipids have joined the conversation as the latest addition to the ingredient portfolio of one of the largest dairy producers in the world. At a time when there is a growing interest in mental health and stress, consumers are searching for solutions that go beyond traditional methods, and for some, milk phospholipids may help provide an answer.

Stress affects everyone, whether it be a young student who struggles to complete their schoolwork, an adult in a demanding work environment, a parent trying to find balance between work, parenthood and social life, or an older adult who may worry about age-related issues such as cognitive decline. According to Global Data, 74% of global consumers are concerned or very concerned about stress and anxiety.

The pandemic has heightened the concern over stress and anxiety to the forefront and many people are looking for cognitive and stress management support.

At the same time, consumer demands are shifting away from traditional supplement delivery formats, such as capsules. Globally, 85% of consumers prefer to consume health-enhancing ingredients through food and 57% prefer drinks compared to only 23% who have a preference for pills and tablet supplements, according to Global Data.



With stress levels being at an all-time high, this is big news for brands who might be seeking functional ingredients to help address the growing consumer demand for food to be used as medicine.

“Phospholipids are clinically proven to help manage the effects of stress, allowing consumers to stay focused and positive under stress,” says Charlotte Ortiz, Marketing and Communications Manager at Fonterra. Phospholipids are building blocks of all cell membranes in our body. While there are high concentrations of phospholipids throughout the human body, the brain has some of the highest levels. This is due to the structural and functional roles that they play, helping to maintain strength, flexibility, and integrity of brain cell membranes. “As we age, brain phospholipid levels decline, a condition potentially improved by phospholipid supplementation as digested dietary phospholipids absorb easily in humans and cross the blood-brain barrier,” says Ortiz. While they are found in a range of different food sources, phospholipids are particularly abundant in mammalian milk. Specifically, bovine milk sources carry a wider range of phospholipids compared to plant sources.

With the advancement of modern processing technologies, NZMP has produced a dairy-derived ingredient with a high concentration of milk phospholipids suitable for use in a range of applications for consumers seeking functional benefits in their food and beverages, such as nutritional bars and ready-to-mix powders.

Alastair MacGibbon, a principal research scientist at Fonterra, explains the mechanisms of action of milk phospholipids on stress, “The range of milk phospholipids, and in particular phosphatidyl serine and sphingomyelin, can not only help balance stress by reducing the release of the stress hormone cortisol, but also stimulates the

production of key neurotransmitters such as acetylcholine, and contributes to the protective effect of the nerve covering, to improve nerve signalling.” MacGibbon also notes that milk phospholipids have anti-inflammatory effects on the immune system.

There is an expanding body of human clinical research linking consumption of phospholipids to improvements in cognitive performance and mood, especially during stressful times. Such as a recent study published in the journal *Nutrition*, which showed consumption of milk phospholipids improved reaction time during attention switching, under psychosocial stress. Another study including 46 healthy men tested the effects of milk phospholipids versus a placebo during a three-week period. The researchers found that milk phospholipids intake can improve the endocrine response, and improved working memory, during an imposed bout of stress. Supplementation with 300mg phosphatidyl serine, a phospholipid class which accounts for about 14% of the phospholipids in the brain, per day for 30 days in young male subjects induced a more relaxed mood and was associated with a lower production of stress hormones, while performing strenuous exercise.

According to SPINS, mental health is one of the latest categories of functional ingredients that will start to emerge in 2021. NZMP Milk Phospholipids present an exciting opportunity for food and beverage companies to tap directly into the needs of consumers with a category of food with which they may be more familiar: dairy.



Meat up: Japan and Singapore top targets for cultured meat firm Aleph Farm's pilot plant launch

By Guan Yu Lim

10-Feb-2021 - Food Navigator Asia

Israel-based cultivated meat company Aleph Farms is eyeing Japan and Singapore for the launch of its scalable manufacturing platform (BioFarm).

BioFarm is its non-GMO cell-based 3D bio-printing meat platform to cultivate whole-muscle steak. It isolates cells from a healthy cow without slaughtering the animal, and mirrors the natural process of tissue regeneration by growing the cells in a plant-based matrix to form structured tissues of meat. Aleph Farms initially started by producing commercial products, such as its thin-cut beef steaks but is now transitioning into its proprietary platform (BioFarm) suitable for mass cultivation.

CEO and co-founder Didier Toubia told FoodNavigator-Asia the pilot launch of BioFarm is planned for the end of 2022, with Japan and Singapore being ‘high on the list’ of target countries.

According to Toubia, Aleph Farms vision is to build a global platform for the local production of cultivated meat, “producing the meat when and where it is consumed.”

Toubia said one of the big challenges of cultivated meat is the ability to produce large quantities efficiently at a cost that can compete with conventional meat industry pricing, without compromising on quality.

“We have developed five patented technological building blocks unique to Aleph Farms that are put into a large-scale production process. We are establishing a new category of meat, imbued with its own culture and a new world of meaty experiences.”

Singapore was the first in the world to approve cell-based meat, specifically cell-based chicken ingredient for use in chicken bites. This occurred in December 2020 when the Singapore Food Agency (SFA) granted regulatory approval to San Francisco-based Eat Just.

In Japan, there are no regulations as of now, although, discussions are underway for both the product and process of cultivated meat.

Toubia said “Each case (product and production process) goes through the different framework and regulatory pathways formalised by a specific country. In Japan, the discussions towards a formalised plan are in accelerated phases with the help of the Center of Rulemaking Strategies.”

“Regulators have been encouraging innovation and leading transparent dialogue with companies, including Aleph Farms, since early stages, in both product and process development.” Aleph Farms is primarily targeting the food service channel first, and will enter the D2C retail space later. In January, Aleph Farms signed a Memorandum of Understanding (MoU) with Mitsubishi Corporation's Food Industry Group to explore the potential of cultivated meat in the increasingly meat-hungry Japan.

“This MoU implements specific action items on future consumer

acceptance and regulatory pathways. The end goal would be to manufacture and market cultivated meat to the Japanese consumers,” Toubia explained. He said: “Japan is one of the world's densest populated countries with increasing demand for meat consumption, and while it has an incredibly robust economy, the third largest in the world, this nation of 127 million people relies on importing over 60% of its food and resources.”

“Cultivated meat can be produced locally without relying on the availability of local natural resources (land, water) and with a significantly reduced carbon footprint (for beef). Integrating cultivated meat in existing livestock farms can also be a motivation for the younger farmers' generation to stay in the industry.”

Aleph Farms will provide its BioFarm manufacturing platform, while Mitsubishi will provide expertise in biotechnology, branded food manufacturing and local distribution channels in Japan.

The detailed strategy for entering the Japanese market is still under development.

In October 2020, Aleph Farms announced the launch of ‘Aleph Zero’, a new food production initiative attempting to cultivate non-GMO meat on planet Mars. Earlier, Aleph Farms also collaborated with Russian firm 3D Bioprinting Solutions to produce meat on the International Space Station.

Popularity of frozen food rises as brands improve ingredient decks; consumers seek convenience, long-shelf life

By Elizabeth Crawford
26-Feb-2021 - Food Navigator USA

After languishing for years, frozen food is emerging as a powerful growth driver for retailers and CPG brands in part because of its long shelf life and convenience fit well with pandemic living, but also because companies like ConAgra have proactively reimagined products to better meet modern consumer desires.

According to the American Frozen Food Institute and FMI-the Food Industry Association's Power of FrozenReport released Feb. 18, dollar sales of frozen food increased 21% in 2020 and units increased 13.3%, resulting in a 19.4% increase in spending per buyer. “With elevated focus on shelf-life and many more meals at home, frozen food was one of the big winners across grocery departments” in 2020 and during the pandemic, the report notes. The categories gains were immediate after the coronavirus' initial outbreak with frozen food sales nearly doubling in mid- and late-March and continuing to track in subsequent months 30%-40% ahead of the same time a year ago, according to the report. And while sales have slowly tapered to around 15%-20% above 2019 levels, the report adds that they are continuing well ahead of most other categories.



The lift in sales of frozen products was across all categories, but according to the report, seafood, novelties, pizza, breakfast food, processed poultry, appetizers and potatoes/onions also increased their share of total department sales. Not only did sales of frozen increase, but the number of consumers purchasing frozen food also increased, according to the report, which found: "Amid the pandemic, the share of core frozen food consumers, defined as those who consume frozen food daily or every few days, rose from 35% in 2018 to 39% in 2020." While the main attraction of frozen appears to be its long-shelf life, as illustrated by 83% of frozen food shoppers seeking the items "as a backup solution," the report found consumers also valued frozen for its ease of preparation, as a quick total meal solution and time savings. While much of the category's growth may be attributable to circumstances surrounding the pandemic, major players in the segment also sought in recent years to elevate the products they offer to help turn the tide on declining sales. Among these companies is ConAgra, which sells iconic frozen brands such as Birds Eye, Marie Callender's, Banquet, Healthy Choice and Gardein.

"Frozen food has long been important to the American consumer and the category is large, but it languished for quite a few years. Not because consumers didn't trust the temperature state, but because they didn't like the food," ConAgra CEO Sean Connolly said earlier this month at the Consumer Analyst Group of New York

conference. In response, Connolly said, several years ago ConAgra "began to re-imagine our frozen portfolio" to account for changing preferences and incorporate "modern food attributes into our wide array of iconic brands." For example, Marie Callender's is introducing a frozen pot pie with cauliflower in the crust, new Birds Eye value-added meal helpers, such as sheet pan meals and skillet sides, as well as other simple solutions that address modern wellness trends, Connolly said. These launches build on work underway by the company before the pandemic, which helped ConAgra drive \$1b in growth from 2017 through the end of 2020. When the company's "frozen renaissance" began in 2017, it captured \$4.9b in frozen retail sales, the next year it climbed to \$5.1b and reached \$5.2b in fiscal year 2019 before the pandemic sent sales up to \$5.9b.

Data from IRI suggests ConAgra's and others' efforts to reposition their frozen products as better-for-you and value-added will pay off in 2021, even as local economies reopen and vaccinated consumers embrace eating out more often or return to eating at school and the workplace.

Noting frozen department sales increased 19.4% in January 2021 and brought in an additional \$832m compared to the same time last year, IRI pointed to the power of health-related New Year's resolutions to sustain the category's growth. "While initially many shoppers took to comfort and traditional foods during the pandemic, January kicked off with New Year's resolutions for 64% of shoppers. More than one third, 35%, aim to eat healthier, in general; 35% want to get more exercise; and 29% plan to save money. ... With many shoppers thinking of frozen foods as being cost-effective and nutritious, this once more favours frozen food sales," IRI explains in a January update on the frozen segment.

FMI's and AFFI's research confirmed that core frozen food consumers have an "above-average interest in many nutrition and production traits."

According to the study, nearly three-quarters of frozen food shoppers "put some effort into selecting nutritious and healthy food options," and 41% apply greater effort in selecting nutritious and healthy foods during the pandemic.

Just as the demand for healthier options likely will exceed the pandemic, so too will need for convenience, which ConAgra's Connolly said his company is "tailor made to capitalize on." For example, he noted during the pandemic Gen Z and Millennial consumers "drove frozen food growth by an outsized margin," and they likely will continue to buy frozen long after the pandemic as they start families. "We know the annual frozen spend per buyer increases in households with young kids, and it increases as the kids get older. If you put this in perspective during the important family formation years, there will be 25 million or almost 40% more Millennials than there were Gen-Xers and almost half of Millennials have not yet started to have kids," Connolly said. "We fully expect their consumption of ConAgra products will grow along with their families," he added.

Consumers offer 'hundreds of suggestions' to further improve frozen

To help frozen food brands leverage their gains during the pandemic and continue to drive growth, the FMI and AFFI report boils down "hundreds of suggestions" from consumers to improve the shopping experience in the shopping aisle, including a desire for better organization, improved signage and lighting, and also a wider selection of healthier items and products in re-sealable packaging.





REGULATORY NEWS

Industry welcomes Dutch probiotic labelling guidance: "Positive step toward level playing field"

26 Mar 2021 Nutrition Insight

The term "probiotic" can now be used in mandatory labelling information characterizing food supplements in the Netherlands.

Chr. Hansen views the move as a positive step toward creating an equal playing field, while Probi advocates for EU-wide harmonization amid "significant increase" in probiotic demand and awareness in the past decade. "The Dutch stance will help other European businesses to compete on an equal level on the EU market. E-commerce products from the US and Asia are sold under the name of 'probiotics,' while we can't," says Linda Neckmar, vice president of commercial development, Human Health, Chr. Hansen.

Seventh to join
The Dutch Food and Goods Authority published a "Nutrition and Health Claims Handbook" that states as long as the European Commission (EC) does not take a decision on labelling requirements, the term can be used domestically. According to the International Probiotics Association (IPA) – Europe, Bulgaria, Czech Republic, Greece, Italy, Malta, The Netherlands and Spain all have

national guidelines with some specific conditions. Following Spain's recent approval of the term "probiotic" on supplement labels, the Netherlands now brings the total count of Member States to seven. "This is a further positive step in Europe toward simplifying consumer product labelling and communication on products containing food microorganisms," comments Francisco Climent, ADM's health and wellness managing director, EMEA. "It shows recognition of the increasing consumer understanding and acceptance of this terminology."

EU at a disadvantage?
According to the IPA – Europe, there is neither regulatory status nor guidelines defining the probiotics category. There is also not a commonly acknowledged list of individual probiotic strains and/or species. However, some EU Member States have adopted such lists or developed certain conditions for qualifying specific strains as probiotic. "Today, 'probiotics' is a used term among consumers and therefore not to be seen as a claim, but only as an ingredient description," says Tom Rönnlund, CEO of Probi. Health care professionals and authorities have been allowed to use the term, notes Neckmar, but not industry. "Today, European consumers and stakeholders are at a disadvantage compared to most other parts of the

world, where the term probiotics is allowed," adds Rönnlund. Lacking harmonization has notably resulted from EU Member States interpreting the regulation differently. "Hence, part of the controversy is based on the fact that European consumers are exposed to more or less correct information about probiotic products through, for example, internet sales originating from outside the EU," Rönnlund further explains.

Reading the fine print
The handbook differentiates between nutritional and health claims, where a nutrition claim indicates food contents. Typically, a claim containing the word "contains" is a nutrition claim. If the claim is about a (food) substance or category of substances that contains only factual information, it is a nutrition claim, for example, "contains lycopene" or "contains lutein." Sometimes, however, a claim with "contains" is a health claim if the (food) substance indicates a functional effect on health or an implied effect on health. The handbook notes "antioxidants" or "probiotics" as two such examples. These claims must then comply with the regulations for health claims. The handbook further lists probiotics, prebiotics and prebiotic fibres as three examples of health claims considering their reference to the implied health effect of probiotics.

Will the EC comment?

An application has been made to the EC on the use of the term “probiotics” as a generic description traditionally used to indicate a property of an F&B category that may affect health. This application is still pending. Until the EC makes a ruling on this issue, the handbook states the term can continue to be used. It will probably still take some time before the EC makes said statement, Neckmar predicts, but the new Dutch position has created “good momentum.” “If more countries follow, that will put pressure on the EC to reassess their stance,” she adds.

Who's next?

The news may have “some positive impact” on Probi's customers operating in the Netherlands, but it remains a “local” initiative, says Rönnlund. “An EU-wide harmonization would be of much more importance.” “With more attention and discussion on probiotics in general and on the benefits of scientifically studied strains, Probi's products will be more and more interesting to educated consumers.” Furthermore, the Dutch stance adds a tool to Chr. Hansen's belt in its work with the Danish parliament, “trying to convince policymakers to take a similar position as Spain and the Netherlands,” concludes Neckmar.

By **Anni Schleicher**

European scientists call for speedy Nutri-Score roll out amid industry pushback

18 Mar 2021 Nutrition Insight

There is a “disconnect” between front-of-pack labels (FoPL) and ingredient lists of foods containing fruits and vegetables, according to a new US study.

Hundreds of scientists have signed a call demanding the European Commission (EC) to imminently adopt Nutri-Score as a harmonized and mandatory

front-of-pack nutrition label (FoPL). “FoPLs have received growing attention from public authorities and learned societies for many years. While back-of-pack nutritional labelling is now mandatory in most countries, only a fraction of consumers use it for food selection,” Serge Hercberg, call signatory and emeritus professor of nutrition at the Sorbonne Paris Nord University, tells NutritionInsight. Conversely, FoPL helpfully guides consumers toward healthier food choices at the point of purchase as they deliver at-a-glance nutritional information, he continues. Such information can be easily incorporated in food choices in shopping environments, where food selection is operated in an average of 35 seconds. “Moreover, they are thought to be incentives for manufacturers to reformulate their products toward healthier compositions, which would be displayed on the FoPL,” Hercberg explains.

Pan-European support

The call has now been signed by 269 individual European scientists and 21 expert associations representing hundreds of scientists and health professionals working in the fields of nutrition, public health, preventive medicine, obesity, endocrinology, oncology, cardiology, pediatrics and social marketing. These signatories also hail from 32 different European countries. They emphasize that Nutri-Score is the only FoPL in Europe that has been the subject of over 40 scientific studies published

in peer-reviewed international scientific journals. These demonstrate its effectiveness, relevance, and utility to consumers and to public health, as well as its ability to outperform other existing labels or labels supported by lobbyist groups. Hercberg adds that Nutri-Score enjoys strong consumer support and appears to be the preferred format compared to other evaluated logos. Additionally, Nutri-Score has been demonstrated to be particularly efficient for underprivileged people. He also emphasizes that Nutri-Score does not aim to inform about the nutritional quality of foods in absolute value.

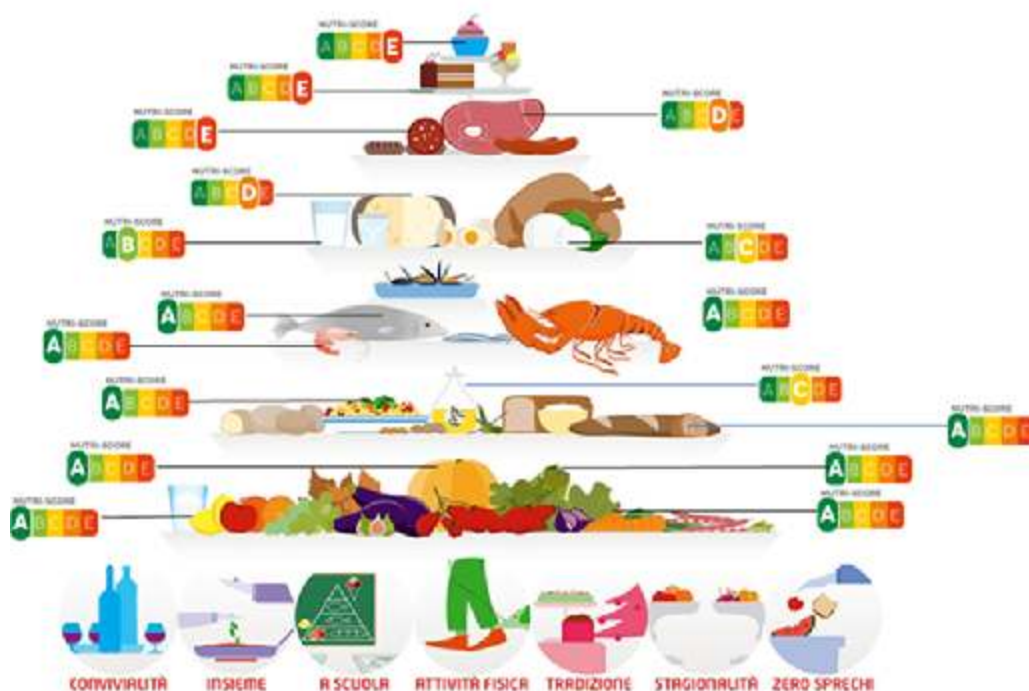
“It is not intended to characterize foods as ‘healthy’ or ‘unhealthy’ like a binary logo. Nutri-Score is a gradual logo with five categories, which makes it possible to provide information in relative value. Depending on the colour and letter, the overall nutritional composition is more or less favourable, thus facilitating comparisons of nutritional quality across the foods.” Hercberg emphasizes the alignment between the Mediterranean diet and Nutri-Score.

Industry involvement

The call also emphasizes the role that some members of industry have in influencing the FoPL systems. The scientists stress that Nutri-Score was developed by academic researchers without any conflicts of interest. However, some lobbies support the NutrInform battery labelling system, which is a monochrome number-based label system. However, the scientists of the call argue that this is not supported by any scientific evidence whatsoever. “Moreover, its concept and design are very similar to the Guideline Daily Amount and Reference Intake format set up by food companies in the 2000s and shown by numerous studies to be entirely ineffective,” they write.



PIRAMIDE UNIVERSALE DELLA DIETA MEDITERRANEA



They argue that the goal of these lobbies is “at best to block the decision-making process for the establishment of a harmonized uniform FoPL across Europe or at the very least to prevent Nutri-Score from becoming the model of choice.” The call states that only scientific evidence must guide political decisions in the field of public health and that the choice of a nutrition label for Europe must correspond to this requirement alone and not to the interests of economic power players or the member states that defend them.

Nutri-Score pushback

The call also states that some F&B lobbies, supported by some member states, have used “misleading” statements to discredit and offset the choice of Nutri-Score. Herberg explains that some opponents consider current mandatory back-of-pack nutrition declarations sufficient. “Other opponents suggest that Nutri-Score is stigmatizing, reductionist or simplistic, denying the results of scientific studies supporting its efficiency and its utility for consumers.” In September, Copa and Cogeca –

which represents European farmers and agri-cooperatives – argued that the system “stigmatizes” highly nutritious products and often promotes unhealthy options. In 2019, a report from the German Sugar Industry Association (WVZ) argued that Nutri-Score reflects “false facts” and misleads consumers.

At odds with Mediterranean diets?

“In recent months, we hear in Italy and Spain that Nutri-Score would oppose ‘traditional products,’ ‘made in Italy products’ and ‘Mediterranean diet model,’” Herberg says. Indeed, Spain’s ministry of consumer affairs recently called for olive oil to be excluded from Nutri-Score, while an Iberian pork association asked for an exception for jamón ibérico, citing health benefits. However, Herberg emphasizes that Nutri-Score is not at all opposed to components of the Mediterranean diet. “The Mediterranean diet is fully consistent with the classification provided by the Nutri-Score, which classifies

more favorably foods, or dishes that are low in fat, sweet or salt, high in fiber, fruits and vegetables, legumes and nuts. When comparing the recommendations of the pyramid of the Mediterranean diet and the Nutri-Score, one actually notes the good convergence,” he concludes.

By Katherine Durrell

Japan GM food safety update: Transgenic soy and rapeseed have no impact on biodiversity even after 15 years –government study

By Pearly Neo
15-Feb-2021 Food Navigator Asia

The Japanese government has found no sign of genetically modified (GM) soybean and rapeseed crops having any impact on surrounding biodiversity over 15 years of natural growth, further strengthening its argument for further GM-related approvals in the country.

According to the report by the Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF), till date no sign of any impacts to the biodiversity surrounding areas where GM rapeseed or soybeans has been found, despite research having been ongoing for some 15 years. “Since 2006, we have been investigating the growth of transgenic rapeseed and soybeans, and the presence or absence of crosses with their related species in the area around where they grow,” said MAFF in a formal statement. “In the latest survey conducted in 2020, the results do not show a significant situation where the



recombinant genes from either GM rapeseed or soybean plants have spread to any closely related species near them, or led to an expansion of the growth range of the GM plants. “Therefore, it is considered that GM rapeseed and soybeans are not likely to affect biodiversity.” For soybeans, the MAFF research team had conducted their research on locations containing both GM soybeans and wild soybeans, considered ‘closely related species that can be crossed with GM soybeans’. The survey covered an approximately 5km radius from the GM soybean sites, and the leaves of the plants were used for analysis. “Analysis was conducted for the herbicide resistance genes and pest resistance genes known to be present in the GM soybeans - No crosses between GM and wild soybeans, or between GM soybeans with different resistances were observed,” said MAFF. “For rapeseed, we did observe some 19% of cases in this survey where GM rapeseed spread the recombinant gene to other GM species with different genes or closely related non-GM species, but based on crossover rate assessment this is not considered to have significant biodiversity impact.”

According to MAFF, the biodiversity impact here was assessed based on the genetic crossover rate between GM and non-GM rapeseed species – the normal crossover rate for non-GM species is between 5% to 30%, so the 19% rate was considered to be ‘within range’. “Furthermore, all previous surveys [since 2006 to 2018] have not shown any situation where the recombinant gene spread in rapeseed. However, MAFF will continue studies to verify the impacts of GM crops on biodiversity and the possible presence of any hybrids and further

pursue scientific understanding of the impacts of GM crops in Japan.” The biodiversity impact argument is commonly used by anti-GM activists to protest GM crop cultivation for years, even as scientists argue that these concerns are not scientifically valid. MAFF’s adamant stance that GM rapeseed and soybean show no impact on biodiversity comes as no surprise as the Japanese government has been gradually pushing for greater GM acceptance in the country, despite consumer group resistance.

Japan is one of the largest importers of GM foods in the world, with approvals granted for over 200 types of GM foods or food additives. In 2019, an expert panel under the Ministry of Health, Labour and Welfare (MHLW) also announced that some types of GM foods (specifically those using gene-editing technology to make) would be allowed to go on sale in Japan.

“There is little difference between traditional breeding methods and gene editing in terms of safety,” the expert panel’s chair Hirohito Sone told NHK. “What is needed to ease public concerns now are thorough explanations of these new technologies.” Indeed, the Japanese government has put a great deal of effort into providing such explanations since then – a great deal of website space is dedicated to the explanation of GM foods and the relevant technologies on the MHLW website, including a variety of brochures and point-by-point explanatory documentation. Although there is no specific promotion or marketing of GM foods in these documents, the vast majority of examples provided are positive ones, e.g. how GM potatoes can be cultivated to have remove toxins, or GM tomatoes can have increased GABA content.

Not all GM foods in Japan are subject to mandatory labelling – products where the genetically modified DNA or proteins derived from these are not detectable after processing such as oil are only subject to voluntary labelling. This also applies to gene-edited foods as it is currently not possible to identify these via scientific methods.

Despite the government’s enthusiasm and endorsement, the Japanese public remains reluctant to accept GM foods as a mainstay. According to research conducted by the Pew Research Centre last year, some 32% of Japanese consumers believe that GM foods are generally unsafe to eat, and despite MHLW’s education efforts, 51% of the public maintains that they still ‘don’t know enough to say’, indicating continued distrust despite the large amount of available information. “40% of women and 25% of men surveyed felt that it is generally unsafe to eat GM foods,” said the researchers. In addition, consumer groups also maintain that the recent approvals of gene edited foods are too hasty ‘and could lead to unintended and undesirable consequences.

“Unexpected things may happen. A wrong gene may be cut off mistakenly or unintended crossing may occur,” civic group Co-Leader Hiroko Yoshimori told Japan Times. “I feel the system was launched hastily without enough consideration. Safety screenings and indication on food labels should be made mandatory.” Despite all of this, Japan is still pressing on, with plans to approve the first gene-edited product – a GABA-rich GM tomato to prevent high blood pressure developed by a local start-up – with an MHLW expert panel having been established to analyse this.

