

DIET BYTE

E-newsletter of Indian Dietetic Association- Delhi Chapter

SEPTEMBER 2017



Theme : Probiotics

Inside the Issue :

- From the President's Desk
- Editorial
- Expert Speaks
- Probiotics in Clinical Use
- Frequently Asked Questions
- From Around the Globe
- Interesting Read
- Quiz
- Activities through the year

From the President's Desk

Dear Reader,

While I was in the process of putting together this newsletter on the theme of Probiotics, I was excited to learn about the bid by a western scientist to include fermented foods as the fifth and separate food group in Canada's Food Guide. Fermented foods have been a part of our diet since the ancient times but their importance is being rediscovered anew. Fermented foods allow for the growth of beneficial bacteria in the food, which, upon regular consumption, favours the colonization of these bacteria within our gut. The old adage “you are what you eat” needs to be modified to “you are what the microbes within make you to be”.



As the connection between the microbes, the host and health gets stronger, the human microbiome has garnered much attention.

In an effort to stay updated, we have recapitulated the proceedings of the symposium organized by Delhi Chapter entitled “Benefits and Applications of Probiotics- From Theory to Practice.”

Prof. N.K. Ganguly, Former Director General, ICMR, in the inaugural address of the symposium highlighted the importance of the gut flora and stated that the coordinated effort of the Human Microbiome and the Meta Hit project had revealed that the gut flora is made of 100 trillion microorganisms that include 1000 species and functions as a virtual organ system. A symbiotic relationship between the commensal bacteria is therefore very important for maintaining good health and reducing the risk of disease. An alteration in the balance leads to an imbalance or dysbiosis resulting in clinical disease. Infact 25 disorders have been linked to an altered intestinal flora. The intestine is also home to 70 % of the immune



cells of the entire body and the intestinal microbes play an important role in the growth and development of the immune system. Germ free mice that lack microbes have a very poorly developed immune system making them prone to infection. There-fore there has been a paradigm shift in the way we think and it is becoming increasingly important to understand the significant role played by the intestinal microbes in keeping the digestive system strong and healthy and ensuring that the immune system is trained to fight infection. Recent studies suggest that the role of the intestinal microbes may go beyond gut health and they could be linked to the onset of Obesity, Type 2 diabetes and even Cancer. Interestingly the concept of the gut - brain – microbiota axis is gaining momentum and these microbes could possibly influence the way we think and behave. The critical balance is therefore important and Probiotics and Prebiotics are important nutritional interventions to maintain the balance and keep this important organ healthy.

In addition to the symposium highlights, in this 2017 issue, an attempt has been made to share the latest evidence and insights about the gut microbiota and probiotics.

My sincere thanks to Dr Sushma Sharma, Ms. Anuja Agarwala, Ms Shilpa Thakur and Dr Neerja Hajela for their concerted effort in bringing out this edition of the newsletter.



Ms. Neelanjana Singh



Editorial



Warm greetings to all the readers!

'Let food be thy medicine and medicine be thy food'. This ancient proverb holds true even in the present times when it is being increasingly recognized that some foods have the potential to optimize health and reduce the risk of disease. Rising demand for health-promoting foods coupled with increasing globalization have led to flooding of Indian market with probiotic products.

'Probiotics' is a term coined from Latin word 'pro' (for, in favour of) and Greek word 'bios' (life). Simply put, they are bacteria that aid in maintaining the natural balance of microorganisms in our gut. Nevertheless, the definition given by FAO/WHO (2002) 'live microorganisms which when administered in adequate amounts confer a health benefit on the host' is widely accepted by scientists, regulators, industry as well as consumers.

Among the advocated health-promoting effects of probiotics, particularly Lactobacillus and Bifidobacterium, are - mitigation of lactose intolerance, prevention and treatment of diarrheas, anticarcinogenic properties and reduction of blood cholesterol. But there is an uncertainty about the content and health claims of probiotic products available in the market (ICMR-DBT, 2011). Responding to this situation, FSSAI has brought new Food Safety and Standards (Health Supplements, Nutraceuticals, Food for Special Dietary Use, Food for Special Medical Purpose, Functional Food and Novel Food) Regulations, 2016.

We have selected 'probiotics' as the theme for the current issue of Diet Byte, which carries the related new FSSAI regulations in the Expert Speak column contributed by eminent scientist Dr B Sesikeran. Also included are some case studies on the use of probiotics in clinical practice by Dr Sarath Gopalan, Ms Anita Jatana and Ms Neelajana Singh. The issue covers the wide range of activities conducted by IDA Delhi chapter over the last one year along with regular features such as the quiz and interesting facts.

Hope you enjoy reading the issue

Dr. Anita Malhotra

Editor-in-Chief

Expert Speaks



The new FSSAI regulations- Probiotics and Prebiotics -

Dr B Sesikeran MD

*Former Director, NIN ICMR
Member Scientific Panel on
Nutraceuticals, food supplements*

Food safety and standards authority of India (FSSAI) have come out with new regulations governing Nutraceuticals, Food supplements, Foods for Special Dietary uses (FSDU), foods for special medical purposes (FSMP), plants and botanicals as foods or part of foods, Probiotics and Prebiotics in foods and Novel foods. These regulations become enforceable from Jan 1st 2018.

The probiotics regulations were based on the **ICMR-DBT Guidelines for Evaluation of Probiotic Foods, 2011**. The definitions are essentially as in above guidelines and as given under

(b) “Foods containing Probiotic Ingredients” means foods with live microorganisms beneficial to human health, which when ingested in adequate amounts (as a single strain or as a combination of cultures) confer one or more specified/or demonstrated health benefits in human beings;

and the microorganism strain used in these foods shall be deemed to possess probiotic property when it is capable of surviving passage through the digestive tract, and has the capability to adhere and proliferate in the gut and be able to confer a physiological benefit. If the intended use of a probiotic product is for treatment, cure, prevention or mitigation of a disease, it would be regulated by the drug authority (CDSCO) and not by food regulation. However, if the intent of use is to provide generalized health benefits like better gut health or improved digestion or better immune function etc then it would be considered under food regulation.

The regulation provides a list of approved probiotic bacteria as well as prebiotics under its schedules X and XI. If the food business operator intends using any of them there will be no requirement for seeking an approval. The presence of commonly used starter culture of lactic acid producing bacteria such as *Lactococcus* spp. (earlier known as *Streptococcus* spp.), *Lactobacillus* spp. and others used in the preparation in curd and related products **shall not be**

considered as probiotics, if the probiotic properties have not been substantiated.

Any new strains of microorganisms, possessing probiotic properties, **may be approved by the Food Authority after proper scientific evaluation**, and the Food Authority may from time to time enlist specific microorganisms possessing probiotic properties (Schedule X).

Though the minimum number of viable organisms have been indicated as 10^8 per CFU/ Gm / ml, it could be per day too if demonstrated that their efficacy can be seen at that level.

When it comes to product labeling the regulation specifies that the labeling, presentation and advertising shall not attribute the property of preventing, treating or curing a human disease, or refer to such properties to Probiotics. On the other hand statements relating to structure or function or for the general well-being of the body are allowed as long as they are truthful and are also supported by generally accepted scientific data and in addition, the product shall bear a statement, **“This product is not intended to diagnose, treat, cure or prevent any diseases.”**

Other information which are by mandate to be shown on the label are :

1. the recommended serving size which must deliver the effective dose of probiotics related to the health claim and duration of use to have the optimal effect.
2. proper storage temperature conditions and time limit for ‘Best Use’ after opening the container.
3. a warning or any other precautions to be taken while consuming, Known side effects if any, contraindications and product-drug interactions, as applicable; and
- 4) expiry date.

Other regulations on the additives which are permitted and the absence of contaminants shall be followed even for probiotic products.

Though several probiotics and prebiotics containing food products are available in the market, these regulations should bring in proper standardization and better quality with only minimal evidence based claims in the near future.

PROBIOTICS IN CLINICAL USE-Some experiences shared



Dr. Sarath Gopalan

Senior Consultant in Pediatric Gastroenterology, Hepatology and Clinical Nutrition, PSRI Hospital, New Delhi.

Dr. Sarath Gopalan critically reviewed the global scientific evidence that is available for the use of probiotics in the prevention and treatment of various gastrointestinal conditions in children. Several meta-analyses indicate the effectiveness of probiotics in reducing the duration of acute enteritis in children and in reducing the incidence of necrotizing enterocolitis in pre-term babies. Probiotics have been shown to prevent, as well as reduce the severity and duration of pediatric infectious diarrhoea particularly those caused due to Rotavirus. However, the evidence for the use of probiotics in prevention of traveler's diarrhoea is tentative. He emphasized that probiotics may play an important role in treatment of constipation, a condition that affects most children.

He also stated that probiotic benefits are strain specific and health-care professionals should assess the scientific data backing the scientific benefits of the probiotic products.



Mrs. Anita Jatana

*Chief Dietician HOD
Apollo Hospitals, New Delhi*

Mrs. Anita Jatana reiterated that 70% of our immune system is located in the gut and keeping it healthy is the key to good health.

The body has 10 trillion human cells and about 10 times that number of microorganisms in the gut with 500-1000 different bacterial species. The intestinal flora which remains quite stable is often adversely affected by poor nutrition, stress, ageing, parenteral nutrition and antibiotic treatment.

As per the studies by Matsuyama *et al* 2008, *J. Clin. Biochem Nutr* 43, an open label preliminary trial conducted on 10 patients with mildly to moderately active Ulcerative Colitis, an intervention with *Lactobacillus casei* strain Shirota in addition to conventional therapy daily for 8 weeks demonstrated significantly better clinical activity index score as compared to control group. A meta-analysis by Sang *et al* of 13 randomized controlled studies concluded that probiotics could be useful in the maintenance and remission of Ulcerative Colitis. Rosi M *et al* showed that introduction of probiotics could improve the quality of life for celiac patients by strengthening the digestive system and ensuring better absorption of nutrients resulting in better growth and development.

Supported by studies, probiotics were given to a 2 year old child who was diagnosed with Celiac disease. She was put on a gluten free diet with the probiotic LcS once daily for one month. The child was followed up at a regular interval and it was observed that there was an improvement in her symptoms of diarrhoea and showed an improvement in her weight. She continued on a gluten free diet and the probiotic which helped achieve her growth target.

LcS was also introduced to a known case of Ulcerative Colitis who was given the probiotic along with the recommended dietary restrictions.

The patient was in hospital for a week and showed improvement in the frequency of loose stools. The patient was discharged in a stable condition and was followed up in the OPD. He continued with the prescribed nutritional intervention and probiotic and showed a marked improvement in his disease symptoms.

Another patient who was diagnosed as radiation proctitis with history of loose stools was put on bland soft lactose free diet and the probiotic LcS for one week. He showed a marked improvement with a decrease in abdominal pain and frequency of loose stools and was discharged and recommended continued consumption of the probiotic.

A Case of Pouchitis Managed with a Probiotic Preparation



Neelanjana Singh
Nutrition Consultant
PSRI Hospital, New Delhi

Introduction: This report is of a 50-year female suffering from severe pouchitis. This condition was managed successfully with the addition of a probiotic preparation to the standard regimen.

Today, J pouch surgery is accepted as a safe and efficient option for patients requiring proctocolectomy (the removal of the colon and the rectum). The J pouch or the IPAA (ileal pouch anal anastomosis) is a surgical procedure adopted for those patients of Ulcerative Colitis who do not respond to medical treatment. Approximately 20% of the patients of Ulcerative Colitis fall in this category of non-responders. In the earlier times, when J pouch was not a feasible option, ileostomy with an external bag acting as a reservoir was the only way out for those who had undergone proctocolectomy.

This lady had been suffering from Ulcerative Colitis since 1995. She was repeatedly hospitalized with complaints of rectal bleeding, diarrhoea, and very low hemoglobin levels. Administration of

intravenous steroids and blood transfusions were done to treat this problem. In 1998, after several admissions to the hospital the refractory nature of her disease condition was explained to her due to which surgical intervention was required. This surgery would involve removal of the colon and rectum along with the pouch construction surgery. It was only in January 2010 that the patient finally agreed to undergo a proctocolectomy and concurrent IPAA. A temporary loop ileostomy was done for the 3-month period during which the newly created reservoir/ pouch would be ready for use. After the 3-month period, the ileostomy was closed and the ileum was joined to the prepared pouch.

Patient remained stable for 5 months after the final step of the two-part surgery. However, in the sixth month she was back in the hospital with symptoms of abdominal bloating, distention, diarrhea (more than 12 motions per day). The cause of the symptoms was diagnosed with the help of tests that included pouch endoscopy and biopsy. It was confirmed that the cause of these symptoms were because of Pouchitis.

Pouchitis is a commonly encountered problem in those who have had J pouch surgery. The data also suggest that almost 50% of the patients with a pouch experience at least one episode of pouchitis and the highest chances of developing this problem is in the first six months of the pouch surgery. The standard treatment for Pouchitis is treatment with the antibiotic preparation Ciprofloxacin which was administered in this case. However, within 20 days the patient had another episode of Pouchitis.

This led to another regime of standard treatment with stronger third generation antibiotics like Rifaximin and anti-inflammatory drugs. A probiotic was also included in the treatment regimen. Two bottles of the probiotic containing *Lactobacillus casei* strain Shirota were recommended. Within 10 days the bowel movements reduced from 12 a day to 6-8 a day.

In order to confirm that complete healing had taken place, pouch endoscopy was repeated. Mucosal

ulceration and bleeding had resolved completely. The antibiotic course continued for two-week period. However, the probiotic preparation was to be continued for the next two months at the maintenance dose of one bottle per day. The patient is doing well for over one year now and is completely free of rectal bleeding. She continues to consume the probiotic.

Even today, the exact cause of pouchitis is not clearly understood. What is known is that there is a decreased number of the beneficial bacteria (Lactobacillus and Bifidobacteria) in the gut of such patients. Moreover, the population of anaerobic bacteria (Clostridium species) is usually high. Hence, there is evident dysbiosis of the natural gut flora. Taking a clue from this information, early investigators set off wanting to test the use of probiotics in such a setting.

The mechanism of action of the probiotics in pouchitis could be explained in a number of ways. One reasonable explanation for this action is that the probiotic bacteria introduced as a supplement were able to crowd out the bacterial flora responsible for the inflammatory response. Earlier studies have confirmed that certain probiotic strains can successfully treat pouchitis symptoms and are effective as a therapeutic strategy. With the continued success of many strains of probiotics in treating pouchitis, its role in prevention is also being investigated.

In order to assess the difference that the probiotic therapy made to the overall health of the patient, the quality of life of this patient was assessed by means of a questionnaire and marked improvement has been noted.

From Around the Globe

Scientist Wants Fifth Food Group Added to Canada's Food Guide

Canada's Food Guide has four well-known food groups—Meat, Fruits and Veggies, Grains and Dairy. Probiotic scientist Gregor Reid, Director of the Canadian Centre for Human Microbiome and Probiotic Research at the Lawson Health Research Institute has submitted recommendations which he is hoping will get Health Canada's attention, and get fermented foods on the guide. “Of all the food groups that have health benefits, it's hard to see one that's better than fermented foods,” said Reid. Also

added, fermentation—to create products such as yogurt and sauerkraut—can produce health-boosting bacteria called probiotics.

Certain probiotic strains have been shown to improve human digestive function or help the human immune system.

In early 2019, Health Canada will release its new dietary policy with details on healthy-eating patterns, recommended portions and types of foods. Reid hopes fermented ones will make the cut. “Canadians would become more aware that fermented foods are good for their health. a scientist”

Frequently Asked Questions

Q. In a country like India where curd is an integral part of our culture it is often being confused for a probiotic. What is the difference between the commercially available probiotic products and the curd that we eat every day?

A. Curd or dahi is a product that is obtained by fermenting boiled and cooled milk with harmless lactic acid bacteria like *Lactobacillus acidophilus*, *Lactobacillus lactis* and *Lactobacillus bulgaricus* etc. The number and kind of bacteria that are present in curd may vary from home to home and may or may not reach the intestine alive to give a scientifically proven health benefit. Therefore, curd is not a standardized product and cannot be called a true probiotic. For any product to be called a probiotic, it must contain a specific strain of live bacteria (normally more than a billion in the product) which are resistant to gastric acid, bile and pancreatic juices and reach the intestine live to impart a scientifically proven health benefit. Most of the probiotic products are available in the form of curd and fermented milk drinks but they are standardized products and have been scientifically tested for the health benefit that they impart.

Q. What is a recommended dose for a probiotic? Do different probiotics require different doses for their efficacy?

A. The recommended dose response for a probiotic varies greatly with the strain and product. Although many over the counter products deliver in the range of 1- 10 billion cfu/ dose, some products have been shown to be efficacious at lower levels while some require substantially more. For example *Bifidobacterium infantis* was effective in alleviating symptoms of IBS at 100 million cfu/day, whereas studies with VSL#3 have used sachets with 300 – 450 billion cfu. It is not possible to state a general dose that is needed for probiotics, the dosage has to be based on human studies showing a health benefit.

Q. Would taking probiotics routinely with antibiotics prevent antibiotic associated diarrhoea?

A. Probiotics are thought to combat antibiotic associated diarrhoea by probiotics by maintaining or restoring the gut microecology during or after antibiotic treatment through receptor competition, competition for nutrients, inhibition of epithelial and mucosal adherence of pathogens, introduction of lower colonic pH favouring the growth of non-pathogenic species, stimulation of immunity, or production of antimicrobial substances. In a recent systematic review and meta-analysis of 82 RCTs, (Hempel *et al* 2012) it was shown that the probiotic benefit is dependent on the strain of bacteria. This review suggests that the use of probiotics is associated with a reduction in antibiotic associated diarrhoea.

Q. Is a multi-strain probiotic better than a single strain product?

A. The mechanism of action of probiotics in different situations is not well understood and so the optimal use of one or more strain cannot be precisely determined. While it seems intuitive that a combination of strains might be convenient to suit a range of indications and individual variation, this is dependent on the optimal probiotic bacterial numbers in different situations and assuming that the probiotic constituent of any cocktail are not mutually antagonistic which requires further.

Q. Can probiotics improve digestion and help eliminate Irritable Bowel Syndrome (IBS)?

A. Pathogens produce toxins that can result in diarrhoea. Probiotics simply interfere with the growth of pathogens, thereby curtailing the production of toxins. Probiotics correct the imbalance of the intestinal flora and improve regularity and consistency of stools. Several studies have demonstrated significant therapeutic gains with probiotics in comparison to a placebo. A

reduction in abdominal bloating and flatulence has been observed using probiotics.

Q. For how long should I take probiotics before I will notice a difference?

A. Most probiotic bacteria get passed out with the stools. Hence to get significant benefit, it is advisable to consume them regularly. You will observe a noticeable difference after 2- weeks of consumption of the probiotic.

Q. Can I take probiotics with prescription drugs?

A. When taking a course of antibiotics or prescription drugs, some of the beneficial bacteria in the digestive system may be destroyed. The resulting imbalance of the intestinal flora may result in problems such as diarrhoea. Consuming probiotics with its unique strain of bacteria has shown to be most helpful in re-establishing a balance of beneficial bacteria in the digestive system during antibiotic treatment.

Q. What should I look for on the Label of a probiotic food?

A. The label of a food containing probiotics should contain:

- The probiotic name, which includes genus, species, strain.
- Minimum viable numbers of probiotics at the level at which efficacy is claimed and at the end of shelf- life.
- Health claim(s)

- Serving size for efficacy
- Storage conditions

Q. What is the difference between probiotic foods and drugs?

A. With the growing awareness and interest in the area of the gut flora, mechanisms that can favourably improve the composition and metabolic activities of the gut flora are becoming increasingly important. Probiotics, Prebiotics and Synbiotics are some of the interventions that are commonly being used to achieve this.

Probiotic foods with defined health benefits are available in the form of yoghurt and fermented milk drinks and contain strains of bacteria that are scientifically validated for their health benefits. The same numbers are not found in natural fermented foods that we consume every day and hence they are different. The potential of these foods is being realized as their role in improving health is being validated. They are therefore becoming increasingly important and are being consumed by many as a part of the daily diet.

Probiotic drugs on the other hand are recommended by doctors in specific disease conditions most often being during and after a course of antibiotics. They are available in the form of tablets, capsules and sachets containing probiotic bacteria in the freeze-dried form and sold as drugs in the market.

Probiotic drugs are normally taken for a limited period of time whereas probiotic foods are becoming a part of the daily diet.

Interesting Read

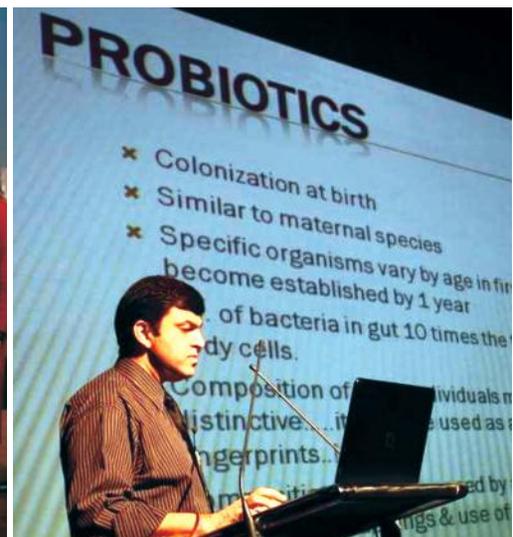
GUT MICROBIOTA

- 1. Diet to Aid Rethinking Human–Microbe Symbiosis.**
Derrien M et al. 2017. *Trends in Microbiology*. 25 (2).100-112
- 2. The gut microbiome as a target for prevention and treatment of hyperglycemia in type 2 diabetes: from current human evidence to future possibilities.**
Brunkwall L & Melander MO et al. 2017. *Diabetologia*. 60 (6).943-951
- 3. Western diets, gut dysbiosis, and metabolic diseases: Are they linked?**
Martinez K B et al. 2017. *Gut Microbes*. 1–13
- 4. Talking microbes: When gut bacteria interact with diet and host organs.**
Cani PD et al. 2016. *Mol. Nutr. Food Res*. 60. 58-66
- 5. Diet, Microbiota, Obesity, and NAFLD: A Dangerous Quartet.**
Machado MV et al. 2016. *Int. J. Mol. Sci*. 17.481.doi:10.3390

PROBIOTICS

- 1. Beneficial effects on host energy metabolism of short chain fatty acids and vitamins produced by commensal and probiotic bacteria.**
Le Blanc et al. 2017. *Microb Cell Fact*.16:79
- 2. Effect of Probiotics on Metabolic Outcomes in Pregnant Women with Gestational Diabetes: A Systematic Review and Meta-Analysis of Randomized Controlled Trials.**
Taylor B L et al. 2017. *Nutrients*.9, 461
- 3. Effect of probiotics on digestibility and immunity in infants.**
Xiao L et al. 2017. *Medicine*. 96 (14). 53-59
- 4. Positive Effect of Probiotics on Constipation in Children: A Systematic Review and Meta-Analysis of Six Randomized Controlled Trials.**
Huang R et al. 2017. *Frontiers in Cellular and Infection Microbiology*.7.153
- 5. The effects of probiotics on depressive symptoms in humans: a systematic review.**
Wallace and Milev. 2017. *Ann Gen Psychiatry*. 16:14

Inauguration of Symposium Probiotics–From Theory to Practice



Quiz

GUT MICROBIOTA

- There are 100 million neurons in our gut which is referred as the of the human body. The gut also contains% of the immune cells of the body and hence is called as 'largest immune organ' of the body.
- The Human Microbiome Project (HMP) was initiated with the goal of identifying and characterizing the intestinal microorganisms which are associated with both health and disease. This project was initiated in 2008 by
 - World Health Organization (WHO), Switzerland
 - Food & Agricultural Organization (FAO), Italy
 - National Institute of Health (NIH), USA
 - The White House, USA
- Studies have shown that Germ free mice are more prone to infections because they:
 - Have are devoid of microorganisms
 - Have reduced secretory IgA
 - Defects in development of Gut Associated Lymphoid Tissue (GALT)
 - Smaller payer's patches
 - All of the above
- Our gut is home to 100 trillion microbes which weigh about 1.5-2.0 kg that function as a 'Virtual organ'. These microbes start colonizing in our gut from birth and stabilize by-
 - 2 years of age
 - 5 years of age
 - 10 years of age
 - 20 years of age
- Indigestible fibers that reach the large intestine to serve as substrates for the growth of the beneficial bacteria and produce short chain fatty acids which help to-
 - Increase gut motility by decreasing the gut pH
 - Help absorption of nutrients like Calcium, Magnesium and Iron
 - Provide energy for colonocytes
 - All of the above
- High fat diet results in an increase in the harmful Gram-Negative bacteria that have the below component which is also a cause for endotoxemia
 - Proteolytic enzymes
 - Saccharolytic enzymes
 - Exopolysaccharides
 - Lipopolysaccharides
- The initial studies of the role of the gut bacteria with obesity were conducted by Prof. Jeff Gordon who showed the connection between gut microbes and diet as a key factor in the path to obesity. His studies in animal models showed that obese people had a microbiota that was -
 - Firmicutes predominant
 - Prevotella predominant
 - Bacteroidetes predominant
 - Ruminococcus predominant
- It has been discovered that there are more than 1000 species of bacteria and the gut microbiota of each individual is different. However, there exists a core of at least bacterial species that can be considered common to all humans.
 - 63
 - 57
 - 48
 - 74
- C. difficile* is a Gram-positive, anaerobic, spore-forming, and toxin-producing bacillus. It is a leading cause of Clostridium difficile infection that can often be fatal. FMT which has been used to treat this infection successfully is essentially
 - Transferring intestinal microbes from a healthy donor to a patient
 - Transferring gut beneficial bacterial enzymes from a healthy donor to a patient
 - Transferring gut beneficial bacterial plasmid from a healthy donor to a patient
 - Replacing gut beneficial intestinal cells from a healthy donor to a patient
- Serotonin is a monoamine neurotransmitter. Biochemically derived from tryptophan, it is popularly thought to be a contributor to feelings of well-being and happiness. Which part of the body produces almost 2/3rd of the serotonin?
 - Lungs
 - Brain
 - Gut
 - Liver

PROBIOTICS

- Probiotics are different from Lactic Acid Bacteria (LAB) that commonly found in traditional fermented foods because they-
 - Contain a specific bacterium
 - Reach the intestine alive and are able to colonize there
 - Impart scientifically proven health benefits
 - All of the above
- Though most of the probiotics are Lactic Acid Bacteria (LAB), they are identified and classified by their -
 - Genera, Species and Strain
 - Genera and Species,
 - Genera alone
 - Species only
- Probiotics interact with special receptors on the intestinal epithelium to build innate immunity and are known as:
 - Toll Like Receptors (TLR's)
 - Interleukins
 - TNF α
 - Interferon γ
- Combination of Prebiotics and Probiotics also known as Synbiotics are associated with modulation of the intestinal microbiota and improvement of health. An example of a synbiotic formulation is:
 - A nutritional supplement containing Lactobacillus and insulin
 - A nutritional supplement containing Lactobacillus and inulin
 - nutritional supplement containing Lactobacillus and sucrose
 - A nutritional supplement containing Lactobacillus and amino acids
- Probiotic bacteria reach the intestine alive to impart health benefits through mechanisms like -
 - Production of antimicrobial factors such as bacteriocins and defensins
 - Reducing luminal pH
 - Modulating metabolism of short chain fatty acids, amino acids & bile acids.
 - All of the above
- Probiotics are often recommended along with an antibiotic because:
 - They increase the gut bacteria diversity
 - They improve colonization resistance against pathogens
 - They compete with pathogens for nutrient receptor sites
 - They secrete substances like bacteriocins that can inhibit pathogens
 - All of the above
- Which of these isoflavone (s) is/are present in major quantity in soy products and when used along with a probiotic have helped to reduce the risk of breast cancer?
 - Diadzein & Glycitein
 - Diadzein & Genestein
 - Genestein & Glycine
 - Genestein only
- There are variety of probiotic products available in the Indian market. What should be kept in mind while selecting a probiotic product?
 - Genus, Species and Strain of the bacteria—complete name of the bacteria.
 - Viable cell count until end of shelf life
 - Scientifically proven health claims
 - Suggested Daily Serving and Storage Conditions
 - All of the above

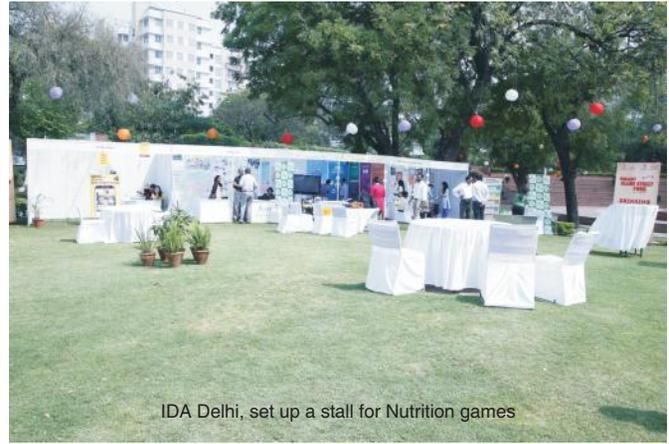
6. e)	2. a)	3. a)	4. b)	5. d)
1. d)	7. b)	8. e)		
Answers				

6. d)	7. a)	8. a)	9. a)	10. c)
1. 2 nd Brain and 70%	2. c)	3. e)	4. a)	5. d)
Answers:				

GUT MICROBIOTA

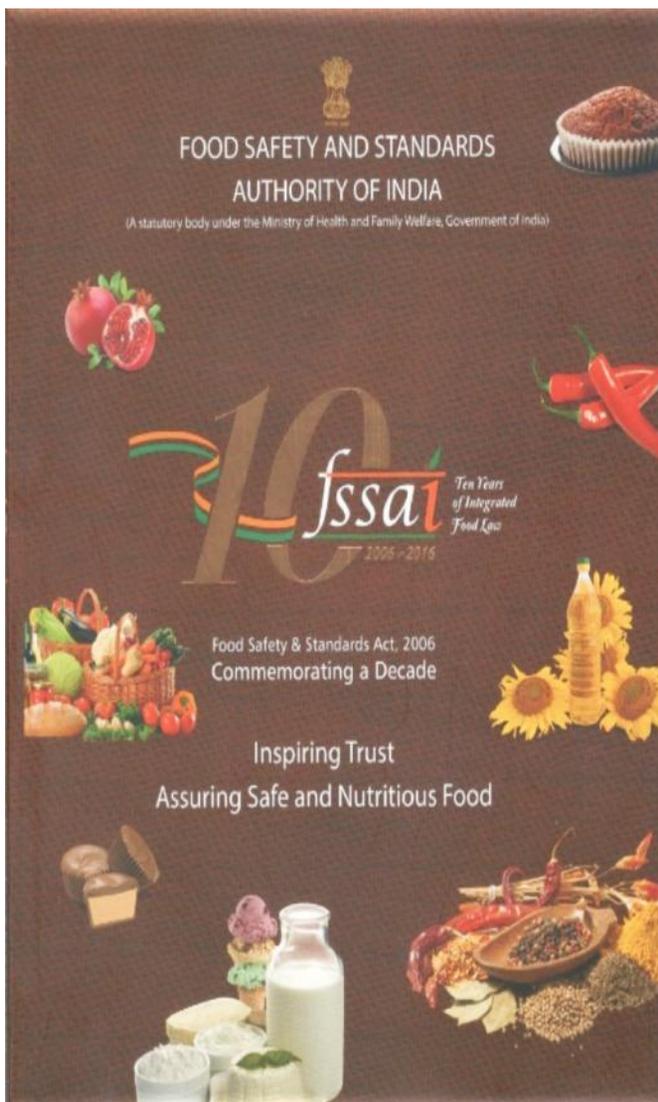
PROBIOTICS

Launch of Project 'Clean Street Food & Street Food Festival' at New Moti Bagh Club lawns



IDA Delhi, set up a stall for Nutrition games

IDA Delhi Speaks in FSSAI's Commemorative publication



fssai

India's globalising food basket and nutritional dilemmas



Neelanjana Singh
President,
Indian Dietetics Association,
Delhi Chapter

Writing on a subject as diverse and inexhaustible as "Nutrition in India" is a daunting task. For one, nutrition is a dynamic science; we continue to learn and discover facets of this science each day. As an unfortunate consequence of that, nutritionists have acquired the reputation of flip flopping on their advice. Be it the case of ghee, butter, milk or eggs, our verdict has been changing from time to time. The one new guiding thought in modern nutrition says that instead of looking at single nutrients and their impact on health, one should look at a combination of nutrients and other dietary factors and their influence on wellbeing.

The challenge is to chart a balance between scientific wisdom and the wealth of India's traditional knowledge. We have begun to do this by accepting, for instance, the value of cow's ghee, which had been demonised for decades. We now know that more than one third of the fat in ghee is MUFA, which is one of the ingredients that gives olive oil its value! Moreover, unlike other foods rich in saturated fat, not all the saturated fats in ghee raise blood cholesterol.

Traditional Indian wisdom in the context of nutrition has enormous value and is quite rational. For instance, a saying whose opening line goes "Sawanharra, bhadon bit" prescribes in poetry form specific preventive foods in the diet, month by month. In translation it says in the month of Sawan one must eat (kanlki) or

Harad (a powerful antioxidant and antimicrobial agent), in the month of Bhaadra one must have bitter foods like karela, green leafy vegetables, neem, green tea (revs up the metabolism besides a host of other benefits). Ayurveda is as much about diet and nutrition as it is about medicine.

It does not require too much insight to observe that modern India is in a period of transition as far as food habits, preferences and cooking practices are concerned. The way we eat and shop for food is also changing and most of this can be attributed to our dependence on technology. The factors responsible for this transition are primarily linked with the socio-economic, epidemiological and demographic changes happening in our country.

In this context I would like to highlight some of significant events in the sphere of nutrition, in recent times.

There is a definite focus on food safety in the past couple of years. It is becoming evident to most people that no matter how nutritious the food is, if it is not safe for consumption, the result can be quite damaging. The Maggi episode did help bring to light the importance of food safety in general. FSSAI, of course, has been playing a crucial role in protecting consumers from such risks.

The updated version of Dietary Guidelines for Indians (DGI) was released by the National Institute of Nutrition just a couple of months

IDA Delhi's Newsletter for 2016 released at Lakshmi Bai College, DU



Celebrating Nutrition Week 2016 at Manav Rachana University



RD Update at Apollo Hospital, visit by National President & RD Chairperson

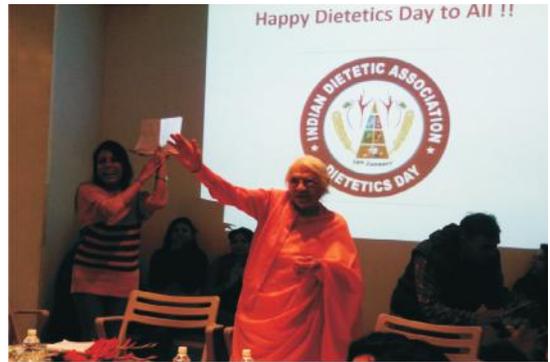


IDA Delhi at 8th National Street Food Festival 23rd -25th December 2016



Dietetics Day 2017

Consult a Dietician-Get Fooducated. Inauguration by: Dr. M.C. Misra, Director, AIIMS



Dr. Sylvia Escott-Stump delivers talk 'Mindful, Not Mindless Eating'



Dr. Sylvia's visit to Lady Irwin College



ACON IDA Delhi Ketogenic Diet Workshop, 3rd Feb 2017.



**ASSOCIATION OF CHILD
NEUROLOGY (ACON)
& IDA DELHI
WORKSHOP ON DIETARY
THERAPIES
IN REFRACTORY EPILEPSY
at CHILD NEUROCON 2017
The 8th National Conference of
The Association of Child Neurology
3rd Feb 2017,
Hotel Piccadilly, Janakpuri, Delhi**

Dr. Beatriz at Paras Hospital Gurgaon, 16th Feb

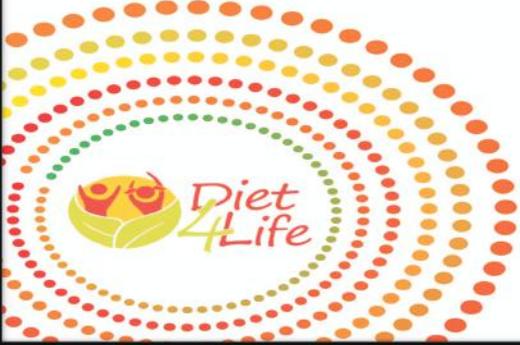





FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA
Inspiring Trust, Assuring Safe & Nutritious Food



ALL INDIA INSTITUTE OF MEDICAL SCIENCES (AIIMS) & IDA(DELHI CHAPTER)
cordially invite you to the inauguration of National Level Training of Trainers program on
Nutritional Management of Inborn Errors of Metabolism (IEM)



12 April 2017
5:30 p.m.

Tamarind Hall, Habitat World,
India Habitat Centre,
Lodhi Road, New Delhi-110003
(Entry from gate no.1 on Lodhi Road)

Supported by








CNE on Protein & Fibre: It's Role in Satiety





Indian Dietetic Association (IDA)
Delhi Chapter



Invites you for the Launch of

The Protein Week

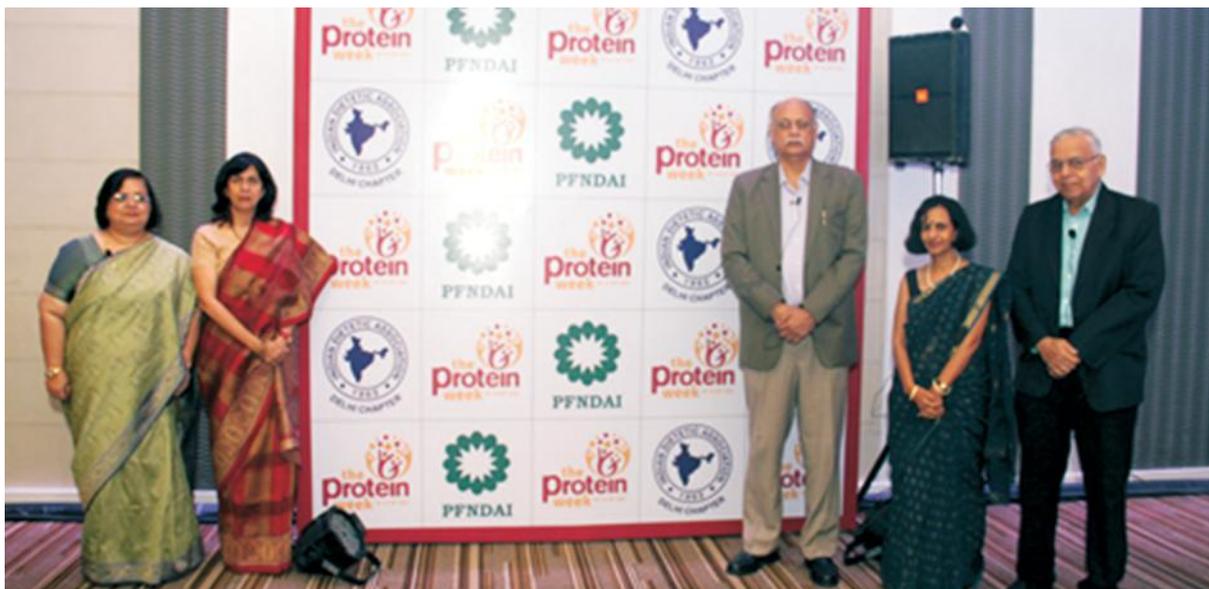
in association with

Protein Foods and Nutrition Development Association
of India (PFNDAI)

Date: 18th July, 2017

Time: 11.30 am

Venue: Rudraksh Hall, India Habitat Center



To commemorate
International Diabetes Educator's Day

&

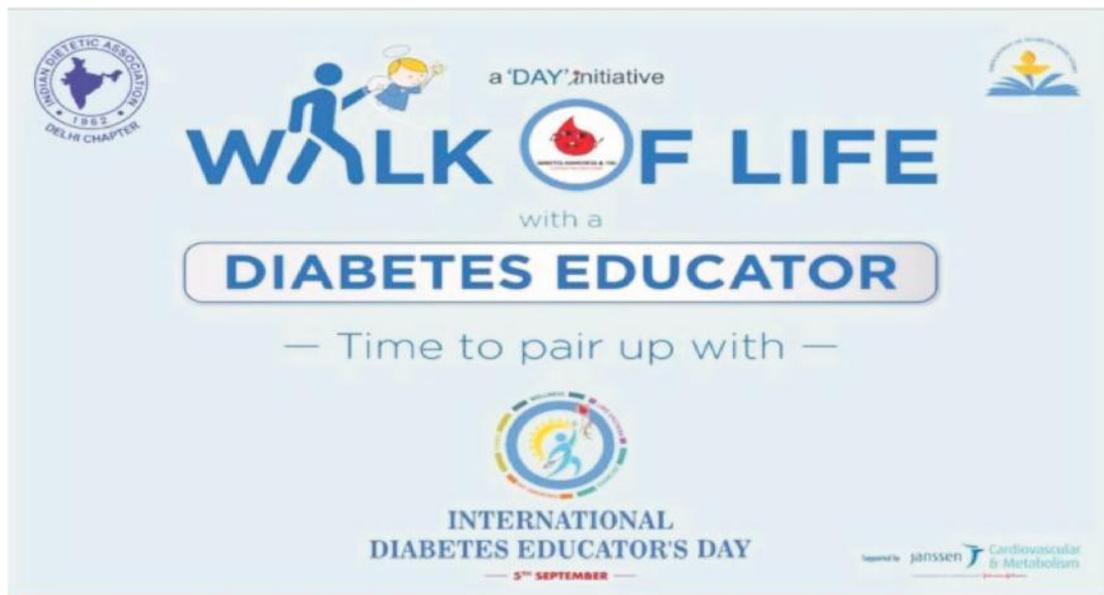
National Nutrition Week (1st -7th September 2017)

Indian Dietetic Association, Delhi Chapter in association with Diabetes Awareness & You (DAY) has organized a **'Walk'** at the Northern Ridge, University of Delhi
on

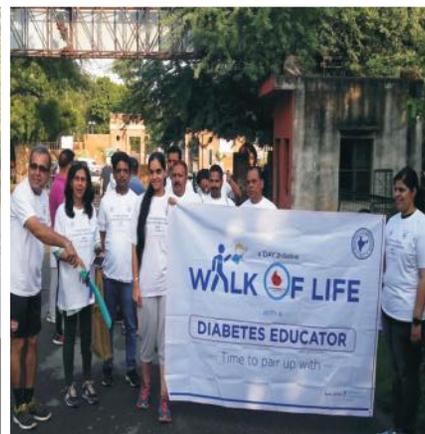
Sunday, 3rd September 2017

Assembly Point: Flagstaff Tower, Northern Ridge, University of Delhi

Time to assemble: 07:00 am (Walk begins at 07:30 am)



**Dr. A.S. Puri, Prof. & HOD Gastroenterology,
GB Pant Hospital, New Delhi flagged off the walk.**



17th International Celiac Disease Symposium
 in association with
Delhi Chapter of Indian Dietetic Association
GLUTEN-FREE DIET: A PRIMER | A WORKSHOP FOR NUTRITIONISTS
 9th September | 14:00 - 17:30 | Room - 2020, 20th floor



- 14:00 - 14:20 **Overview of Celiac disease and the need for this workshop**
Govind K Makheria (India)
- 14:20 - 14:40 **Celiac disease & GFD: The exclusive treatment**
Namrata Singh (India)
- 14:40 - 15:00 **Counselling of patients with celiac disease**
Nick Trott (UK)
- 15:00 - 15:20 **Techniques for counselling of patient and family**
Kaustubhi Shukla (India)
- 15:20 - 15:40 **Gluten-free Life: Challenges for a patient**
Wajiha Mehtab (India)
- 15:40 - 16:05 **Panel discussion: GFD at home - Easy steps and tips**
Neelanjana Singh (India), Avanti Mathur (India), Ruchika (India)
- 16:05 - 16:25 **Monitoring for response and adherence**
Anuja Agarwala (India)
- 16:25 - 16:45 **Packaged foods: Decoding information for patients**
Anita Malhotra (India)
- 16:45 - 16:55 **Recap and Quiz**
- 16:55 - 17:05 **Open House Discussion**
- 17:05 - 17:30 **High Tea**

Workshop on Nutrition



Yakult

World's
No.1
probiotic drink

LOVE YOUR INTESTINE

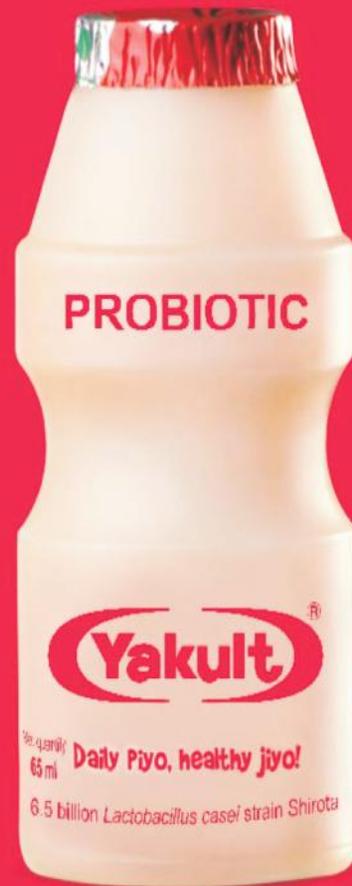
Because 70%
immunity lies there

Each bottle of Yakult contains
6.5 billion *Lactobacillus casei* strain
Shirota (LcS) that suppress the
growth of harmful bacteria and keep
your gut healthy.

Backed by more than 80 years of
scientific research, regular
consumption of Yakult helps improve
digestion and helps build your
immunity.

That is why more than 35 million
people across the globe trust Yakult.

Daily Piyo, healthy jiyo!



Corporate office:

Yakult Danone India Pvt. Ltd., 16, 1st Floor, Community Centre, Okhla Industrial Area Phase-1, New Delhi - 110020. Tel.: 011-40626262.

Delhi & NCR: 011-41056105/40626299; Chandigarh: 0172-2696262; Jaipur: 0141-4015252; Mumbai: 022-24033373/78, 28339801/08,

28728556; Pune: 020-25536023; Bengaluru: 080-41510746; Chennai: 044-43216262; Hyderabad: +91-9949067677;

Ahmedabad: +91-7574881643; Lucknow: 0522-2437970; Kolkata: 033-25196147.

Website: www.yakult.co.in; Follow us on: [f/YakultIndia](https://www.facebook.com/YakultIndia); [t/YakultIndia](https://www.twitter.com/YakultIndia)

E-mail: feedback@yakult.co.in

Printed by : Ishita Enterprises # 9250893551