

NEWSLETTER



IN THIS ISSUE

Traditional Indian Functional
Foods into Modern Routines

The Traditional Indian Diet: A
Model for Sustainable Nutrition

Traditional Indian Fermented
Foods - A Lifestyle Enhancer

Role of Functional Foods in
Health Prevention and
Promotion



TRADITIONAL INDIAN FOODS AND SUSTAINABILITY

Traditional Indian foods prioritize locally sourced, seasonal ingredients and plant-based diets, promoting sustainability. Practices like slow cooking, fermentation, and minimal waste reflect an eco-friendly approach to food production and consumption.



Image courtesy of FoodTech magazine and the magazine's website 2018

FOREWORD MESSAGE



Dr. Sarath Gopalan
National President- Nutrition Society of India (NSI)

This Newsletter addresses a very important aspect of potential utility of the science of Nutrition – Nutraceuticals and Functional Foods. The countries representing South Asia as well as the Asia – Pacific region are endowed with a rich variety of traditional functional foods such as Kinema in North – East India, Natto in Japan and Chikkonkyong in Korea which have been consumed by our ancestors in these respective regions for centuries and they have potential health benefits and some of them have even been shown in animal studies to have potential medical benefits both for promotion of health as well as prevention of disease. However, what is lacking is an abundance of evidence of their potential utility in health and disease in humans through well – designed clinical interventions.

The area of Functional Foods and their potential health benefits and clinical applications is currently a topic of keen interest, not only in India but also South Asia and the Asia – Pacific region. In this regard, the release of this Newsletter is appropriate and timely as it serves to keep the interest alive on this important subject which has over the years been perceived as very relevant and applicable in this part of the World as compared to the West. It is hoped that this Newsletter kindles the interest and passion among our young nutrition scientists in India to pursue research and design interventions using traditional functional foods and also stimulate ideas for product development using constituents of traditional functional foods.



Dr. SubbaRao M Gavaravarapu
National Secretary- Nutrition Society of India (NSI)

It is with immense pleasure that I introduce the newsletter by the Mumbai Chapter of the Nutrition Society of India (NSI), which is being released during their conference on nutraceuticals.

This edition, themed Incorporating Traditional Indian Functional Foods into Modern Routines, highlights the timeless wisdom of our traditional dietary practices and their relevance in today's world. Covering Traditional Indian Fermented Foods, Role of Functional Foods in Health Prevention and Promotion, the Traditional Indian Diet.

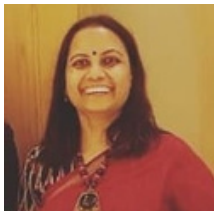
As we embrace advancements in nutrition science, it is crucial to recognize and integrate the richness of our traditional knowledge with a better scientific outlook. This newsletter serves as a starting step to bridge the past and present, offering insights that are both scientifically sound and culturally relevant. The NSI encourages its chapters to publish newsletters as a platform for information exchange, keeping members updated on the latest developments in nutrition science. However, it is essential to remember that the content shared in these newsletters may be interpreted as reflecting the views of the NSI. Therefore, contributors and editors are urged to exercise caution, ensuring that all information is accurate, evidence-based, and aligned with the society's mission.

My sincere thanks to the Mumbai Chapter for their efforts and to all contributors for their valuable insights. I hope this newsletter inspires readers to embrace the benefits of traditional Indian functional foods in their daily lives.



Images courtesy of FoodTech magazine and the magazine's website 2018

FROM EDITOR'S DESK



Dr. Rupali Sengupta
Convener-Nutrition Society of
India (NSI), Mumbai Chapter



Mr. Shivshankar Timmanpyati
Local Executive Committee Member,
(NSI) Chapter

Dear Readers,

With great enthusiasm, we introduce the inaugural edition of the Nutrition Society of India, Mumbai Chapter newsletter! This publication serves as a platform to share the latest research, insights, and developments in the dynamic field of nutrition. Our goal is to inform, inspire, and connect professionals, students, and enthusiasts who are dedicated to advancing nutritional science and promoting public health.

Each issue will feature thought-provoking articles, research highlights, and updates on national and global nutrition initiatives. We aim to bring you a balanced mix of scientific advancements, practical insights, and community stories that reflect the vibrant and dynamic nature of our field. Additionally, this newsletter will keep you informed about the Nutrition Society of India's activities, including events, workshops, and training programs that offer valuable networking and learning opportunities.

As we embark on this exciting journey, we invite our members and readers to contribute their expertise and perspectives, fostering a collaborative space where ideas can thrive. Your feedback, article submissions, and suggestions will be instrumental in shaping this newsletter to meet the diverse interests and needs of our community.

Thank you for being a part of this initiative. Together, let's continue to grow and make a meaningful impact through the power of nutrition.



@nsi.mumbai



www.nsimumbai.org



@Nutrition Society of India, Mumbai Chapter



www.youtube.com/@nsimumbai

EDITORIAL BOARD

EDITOR-IN-CHIEF

DR. RUPALI SENGUPTA
MR. SHIVSHANKAR
TIMMANPYATI

CO-EDITOR

DR. MADHAVI SATHE
DR. NEHA SANWALKA

CONTENT CURATION & COPY-EDITING

DR. LAKSHMI MENON
DR. AMRITA BEHEL
DR. MONAL VELANGI
DR. MINELLY RODRIGUES

DESIGN EDITOR

MS. BANSARI RAO

DESIGN TEAM

MS. MADHURA SHIRSAT
MS. VASUNDHARA SINGH
MS. HARSHADA PALIWAL
MS. HARSHITA TIWARI
MS. SAKSHI THAKARE



INCORPORATING TRADITIONAL INDIAN FUNCTIONAL FOODS INTO MODERN ROUTINES: A NUTRITIONIST'S GUIDE

Neha Pandit Tembe

M.Sc. (Dietetics), B.Sc. (Nutrition), CDE,
Founder- Snack Right.

Indian foods, preparations & dietary practices offer an array of functional foods that seamlessly combine nutrition and flavor, standing as a testament to the wisdom of traditional eating practices. India's rich culinary heritage and versatility are gradually being recognized globally, albeit a bit late. India recently celebrated its 76th Republic Day where the theme was "Swarnim Bharat- Virasat aur Vikas" which focussed on increasing awareness about our cultural heritage (food being a huge part of it). It is a given that for a nation's development and progress, the population's health status is a big factor. In the modern fast-paced life, there is increasing dependence on hyper-processed foods; traditional food is often misunderstood to be time-consuming, too boring, or not in line with the current dietary trends. However, if one understands the basics of Indian culinary wisdom, it is easy to see the treasure trove that it is! These traditional functional foods are not only nutrient-rich but also have medicinal properties rooted in ancient practices and integrating them into our daily routines can have tremendous benefits in specific conditions along with overall well-being. This article explores a few of these Indian functional foods and recipes for immunity, lowering inflammation, and how they can easily fit into contemporary diets with just a little bit of awareness and planning.

Functional Foods for Immunity

Indian traditional foods are abundant in ingredients that naturally boost the immune system. It is well known for its multiple spices and unique spice blends that change region-wise and season-wise as well. Spices, herbs, and fermented foods play a central role in strengthening the body's defenses against infections.

Some unique foods and recipes:

1. Spices – Herbs and Spice Drinks

Kaadha/Kashay (Herbal Decoction): During covid phase, herbal decoctions/ kaadhas had become a favourite beverage for several people and some even went to the extreme of an overdose because it has so many immune boosting components. To explain simply kaadha is a decoction of a combination of spices and herbs. An Ayurvedic practitioner can suggest this ideal combination of spices or herbs that work for a person.

Example- A blend of tulsi (holy basil), ginger, black pepper, cloves, and licorice (jeshtamadh), an age-old remedy with natural immune-supporting properties, also works for sore throat or cough-cold flu infections. But one must be careful not to go overboard as excess spices might have other side effects like acidity/heartburn etc.

Spices: Different bioactives present in spices possess anti-inflammatory, antioxidant, and antiviral properties. For people who do not enjoy tea or herbal drinks, the use of spices can be through everyday foods which is a common practice in Indian cuisine. Region-wise spice mixes are made to be consumed through daily meals like goda masala in Maharashtra, Panch Phoran in East India – Bengal/ Odisha/ Assam, Garam masala in the North, different podis and Sambar powder in the South-Tamil Nadu, Karnataka, Kerala.

Modern Adaptation: One can replace tea/coffee/sugary energy drinks with a warm cup of herbal tea during mid-morning or evening breaks. A ginger lemon tea, tulsi tea, mint tea, cumin tea, and jasmine tea could benefit in several ways. Detox waters which are trending on social media are nothing but these spice or herb-infused waters. Even though they can't detox our bodies like claimed they help reduce the liquid calorie intake, they also give an add-on benefit of the phytochemicals & bioactive present in the ingredients. These herbal or spice teas/ infused waters can even be consumed as a refreshing drink. Some of these can specifically be consumed for relieving symptoms like sore throat, indigestion, acidity-heartburn, fatigue, insomnia, and more. Even if one makes sure to regularly use the "masala dabba" (spice box) for cooking, they get in the health benefits of spices.

Fermented Foods: Good gut health is a critical component of immunity. Fermented foods containing probiotic bacteria and fungi may support the immune system, promote gastrointestinal health, and potentially reduce the risk of various inflammatory diseases. We have quite an impressive list of probiotic foods, with a lot of regional variations as well, just like spices. One has to follow the recommended method of preparation/ fermenting for the same to get the right kind of microbe balance that is health-beneficial. Curd, buttermilk, -Kanji (fermented black carrot drink with mustard), Pakhla Bhat/Panta Bhat,

Nachni Aambil/Ambali, and Gundruk (Fermented Leafy Greens) are just a few examples that could be highlighted.

Modern adaptation of fermented foods: One can simply find out the easy recipes like kanji/ ambli/ pakhla bhat etc belonging to their culture/region and make it a point to include them regularly. Even if it is difficult to make time for the elaborate preparations in daily busy routines; thanks to home chefs and cloud kitchens, one can get it delivered at least in metro cities. Recipes like panta bhat work as a great breakfast on lines of overnight oats, only much better for the gut. Instead of turning towards colas, juices which just quench thirst temporarily along with a glucose spike, drinks like ambli/ solkadhi are cooling for the system as per Ayurveda, light to digest, rich in probiotics, and provide many nutrients as well!

Also, fermented foods like idli /handva/ dosa should be part of a regular diet as well, though the stability of the bacteria on high-temperature cooking is still debatable.

1. **Amla (Indian Gooseberry):**

Amla the powerhouse of Vitamin C, is a unique Indian food that needs a special mention. It also contains polyphenols, alkaloids, and flavonoids, which exhibit antimicrobial and anti-inflammatory properties. The tannins and gallic acid support gut health. which plays a crucial role in immune function.

Modern adaptation: With our current lifestyle and prevalent health problems, amla pickle or murabba (sweet preserve) might not be the best choice to use amla. Rather incorporate amla in chutneys, pickled in brine just grate in salads, and add to smoothies. Both dry amla powder and juice can be used if fresh amla is not available.

Anti-Inflammatory Functional Foods

Inflammatory diseases, like osteoarthritis, rheumatoid arthritis, and chronic inflammatory pain are already known but chronic inflammation is linked to several modern health issues, including diabetes, obesity, and even autoimmune disorders. Modern diets are said to be pro-inflammatory especially those with excess hyper-processed foods, excess refined ingredients, and less intake of fruits-vegetables or poor diet diversity. Traditional Indian diets inherently include anti-inflammatory ingredients that can mitigate these risks.

Some unique foods-recipes:

Spices discussed above too have anti-inflammatory properties, let us consider some others.

2. **Turmeric (*Curcuma longa*):** is recognized globally for its benefits. Curcumin - the active compound, is a potent anti-inflammatory agent that modulates inflammatory responses by inhibiting pathways such as nuclear factor-kappa B (protein growth factor), similar to the action of non-steroidal anti-inflammatory drugs.

Modern adaptation: Turmeric milk (haldi doodh) is a traditional remedy for infections. Make it part of your bedtime routine as "golden milk " or "turmeric latte". But the quality and proportion of turmeric are very important. Also, ensure it's a part of the routine meals.

3. **Ginger (*Zingiber officinale Roscoe*):** Known for its anti-inflammatory and digestive properties. Ginger's bioactive compound, mainly 6-gingerol, exhibits anti-inflammatory effects by inhibiting the production of pro-inflammatory mediators, thereby reducing inflammation and associated pain. It also works for improving digestion.

Modern adaptation: Add fresh ginger to soups, herbal teas, salad dressings, Asian meals, chutneys rather than just kadhas/milk teas/gravy.

4. **Leafy Greens (*Moringa - Moringa oleifera*):** Moringa leaves, in particular, are rich in antioxidants and have anti-inflammatory properties due to their high content of flavonoids and polyphenols, which inhibit pro-inflammatory pathways. They also have several other benefits.

Modern adaptation: Moringa leaf chutney (thogayal), traditionally made in South India, can be revived as a nutritious side dish. Sprinkle fresh moringa leaves into salads to enhance flavor and nutritional value. If fresh leaves are unavailable, Dried leaves can be stored at home for adding to any curry/dal/sambar/khichdi/parathas etc. Also, moringa podi (dry chutney) can be a great addition to dosas/cheelas/savoury pancakes/idli etc.

Replacing Hyper-Processed Foods with Traditional Alternatives

Our culinary history is filled with nutrient-dense recipes that have been overshadowed by modern convenience foods. Reviving these and a conscious shift from hyper-processed foods to traditional recipes can be both a cultural and nutritional boon.

Here are some examples of practical swaps:

Processed Food	Traditional Alternative	Benefits
Sugary breakfast cereals	Millet porridge or ragi malt, Amaranth porridge using any puffed millets(lahi)	High in fiber, protein, and slow-releasing carbs, Instant like cereals.
Polished White rice	Local Unpolished varieties of Red Rice, Wild Rice, Basmati , whole millets.	Gluten-free, rich in minerals, better fiber.
Soft drinks	Amla/kokum sherbet, herbal teas, tender coconut water	Natural hydrating beverages with antioxidants.
Instant noodles	Millet Noodles, Rice vermicelli, Vegetable poha	Nutritious and quick to prepare.
Instant sauces/ dressings	Fresh Chutneys and spreads with kokum, tamarind, tomato, coriander, peanuts, amla	No additives, low sodium, low/no sugars, better quality and less fats, high in beneficial bioactives
Candy bars/Energy bars	Traditional Laddoos	No additives, unrefined sugar can be used with different grains/millets/pulses.

There are even standard meal combinations or ingredient combinations in Indian meals that have a logical reasoning to them which one might ignore for lack of awareness. Examples- the oil tempering on raw salads, the addition of coconut or peanuts to vegetables/ curries, adding a little ghee on rice/roti, and pairing lentils with rice goes beyond just flavor or texture, each has a very logical reasoning. Like better absorption, better digestion, adding good fats/fiber, modulating glucose spikes, improving protein quality, etc. but we need more scientific documentation.

Practical Tips for Integration

- **Start Small:** Introduce one traditional dish or ingredient into your weekly meal plan. Do not buy several new ingredients all at once as it's overwhelming.
- **Meal Prep and Plan:** Meal planning helps to save time, energy, and money and be ready with required groceries. Prepare fermented foods like curd, pickles, or dosa batter in advance.
- **Snack Smart:** Often modern “diet snacks” are marketed as very healthy against traditional snacks. But it is not the case many times. Replace packaged snacks with roasted nuts, seeds, homemade nankeens, or laddoos. For example a moong dal laddoo could be much superior to commercial whole wheat or even millet cookie!
- **Move beyond the diet food culture:** Do not get hung up on trends that reduce meals and food to just numbers, calories, weights, macronutrients, or terms like gluten, keto, millet used to hoodwink someone. Food or meal plate is much more than the marketing and viral diet trends.



References:

- Sengupta, S., Bhattacharyya, D., Kasle, G., Karmakar, S., Sahu, O., Ganguly, A., Addya, S., & Das Sarma, J. (2021). Potential Immunomodulatory Properties of Biologically Active Components of Spices Against SARS-CoV-2 and Pan β -Coronaviruses. *Frontiers in cellular and infection microbiology*, 11, 729622.
- Paswan, V K & Singh, Chandra & Kukreja, Garima & Bunkar, Durga & Bhinchhar, Basant. (2021). Health Benefits and Functional and Medicinal Properties of Some Common Indian Spices.
- Mackonochie, M., Rodriguez-Mateos, A., Mills, S., & Rolfe, V. (2023). A Scoping Review of the Clinical Evidence for the Health Benefits of Culinary Doses of Herbs and Spices for the Prevention and Treatment of Metabolic Syndrome. *Nutrients*, 15(23), 4867.
- Paul, A. K., Lim, C. L., Apu, M. A. I., Dolma, K. G., Gupta, M., de Lourdes Pereira, M., Wilairatana, P., Rahmatullah, M., Wiart, C., & Nissapatorn, V. (2023). Are Fermented Foods Effective against Inflammatory Diseases?. *International journal of environmental research and public health*, 20(3), 2481.
- Gul, M., Liu, Z. W., Iqbal-Ul-Haq, Rabail, R., Faheem, F., Walayat, N., Nawaz, A., Shabbir, M. A., Muneke, P. E. S., Lorenzo, J. M., & Aadil, R. M. (2022). Functional and Nutraceutical Significance of Amla (Phyllanthus emblica L.): A Review. *Antioxidants* (Basel, Switzerland), 11(5), 816.
- Garg, Ayush & Adhalaka, Manoj & Singh, Chandan. (2017). Traditional dietary pattern of Indian food and its scientific basis: an overview. 4, 1063-68.
- Shondelmyer, K., Knight, R., Sanivarapu, A., Ogino, S., & Vanamala, J. K. P. (2018). Ancient *Thali* Diet: Gut Microbiota, Immunity, and Health. *The Yale journal of biology and medicine*, 91(2), 177-184.
- Salis, S., Virmani, A., Priyambada, L., Mohan, M., Hansda, K., & Beaufort, C. (2021). 'Old Is Gold': How Traditional Indian Dietary Practices Can Support Pediatric Diabetes Management. *Nutrients*, 13(12), 4427. <https://doi.org/10.3390/nu13124427>

Conclusion

Previous generations were well aware of the medicinal properties of various foods and food combinations. They intentionally incorporated these into recipes to enhance the health benefits of their meals. But today, traditional practices tend to get negative publicity due to the use of excess fats, sugar, refined flour or being high carbohydrate; and people shift to fads like zero fat/ no rice/ no carbs etc. due to some misleading information circulated and half-baked knowledge, but it is definitely not the case always. Traditional Indian functional foods offer a unique opportunity to enrich modern diets with flavors, nutrients, and therapeutic benefits. By consciously integrating these time-tested recipes and ingredients into daily routines, we can foster better health while preserving culinary heritage and supporting sustainability at the same time.

When practiced sensibly and with understanding it can have numerous benefits. But one needs to understand that just because they are following certain dietary practices for a generation in their homes, does not mean it is a part of “original traditional” Indian diet practices; as habits, consumption methods, recipes undergo changes and adaptations as per times and often old practices are forgotten with modernization. For example, excess use of wheat flour (rotis) and wheat products is not actual part of traditional Indian diet, it became prominent after the green revolution, before which multiple other grains were part of our diets.

Similarly using polished or refined grains, pulses, seeds is a recent trend of past 30-40 years, before which there were always unpolished wholesome. We need to study and refer back to actual old texts and recipes, modify a bit if needed for current lifestyle and then embrace these foods wholeheartedly to nourish our body, mind, and soul while celebrating the richness of India's culinary legacy.

THE TRADITIONAL INDIAN DIET: A MODEL FOR SUSTAINABLE NUTRITION

Dr. Chandni Chopra

Nutrition Consultant, Academic Coordinator -PGD, LSI



India's culinary heritage, spanning thousands of years, offers not just a wealth of flavors but also a profound model for sustainable and healthful living. The traditional Indian diet, characterized by its emphasis on plant-based foods, local ingredients, and holistic nutritional principles, aligns closely with the growing global demand for sustainability. By revisiting and understanding these practices, one can find valuable insights into achieving dietary sustainability without compromising health or cultural identity.

Traditional foods refer to those foods that are passed down through generations within a culture and are deeply connected to local biodiversity, culinary practices, and socio-cultural heritage. These foods are often prepared using indigenous ingredients and methods, ensuring sustainability and nutritional adequacy (Kuhnlein, Erasmus, and Spigelski, 2009).

They play a crucial role in supporting food security and preserving both cultural heritage and the environments in which they are rooted. Research indicates the importance of promoting and safeguarding knowledge of traditional foods within indigenous communities (Sidiq et al., 2022). Traditional food crops generally have a lower environmental impact compared to conventional food production, which is often linked to issues such as deforestation, water pollution, and climate change (FAO, 2017). Additionally, these foods play a vital role in preserving cultural practices, traditional cuisines, and the heritage of local communities (Durst and Bayasgalanbat, 2014).

Nutrition transition has led to traditional diets being replaced by more Westernized diets that are more energy-dense, higher in sugar, salt, and saturated fats. This shift has led to an increase in overweight and obesity rates in many regions worldwide, including India (Popkin, 2006).

The Foundations of the Traditional Indian Diet

The traditional Indian diet varies significantly across regions, influenced by geography, climate, religion, and socio-economic conditions. Despite its diversity, common threads weave through these culinary traditions, creating a cohesive narrative centered on plant-based eating, seasonal consumption, and minimal wastage. Staples like lentils, whole grains, vegetables, fruits, nuts, seeds, and spices dominate the diet, with animal products often taking a supplementary role rather than the centerpiece (Salis *et.al.*, 2021; Swaminathan, Vaz & Kurpad, 2012).

A critical characteristic of the traditional Indian diet is its reliance on locally grown and seasonal foods. For instance, millets such as ragi, jowar, and bajra have been integral to Indian diets for centuries, particularly in semi-arid regions. Millets are not only highly nutritious but also require less water and chemical inputs compared to rice and wheat, making them an environmentally sustainable choice (Mal, Padulosi & Ravi, 2010). Similarly, legumes like chickpeas, pigeon peas, and black gram provide an affordable and sustainable source of protein while enriching the soil with nitrogen through biological fixation (Stagnari *et al.*, 2017).

Traditional cooking methods further enhance the nutritional value and digestibility of foods. Techniques such as fermentation—used to prepare idli, dosa, and dhokla—improve nutrient bioavailability and gut health while preserving food for extended periods without refrigeration.



The use of whole ingredients and the practice of preparing meals from scratch minimize the reliance on processed foods, which are energy-intensive to produce and often come with excessive packaging.

The Nutritional and Environmental Benefits

Scientific research underscores the health benefits of the traditional Indian diet, which is rich in complex carbohydrates, fiber, vitamins, minerals, and phytonutrients. Studies have highlighted that diets emphasizing plant-based foods are associated with lower risks of chronic diseases, including cardiovascular diseases, type 2 diabetes, and certain cancers (Liang *et al.*, 2024; Tusso *et al.*, 2013). Moreover, the use of spices like turmeric, cumin, ginger, and garlic not only enhances flavor but also provides anti-inflammatory and antioxidant properties (Krishnaswamy, 2008).

From an environmental perspective, plant-based diets have a lower ecological footprint compared to meat-centric diets. Livestock farming is a significant contributor to greenhouse gas emissions, deforestation, and water consumption. According to a study published in *Nature Food* (2023), shifting towards plant-based diets can reduce global agricultural greenhouse gas emissions by up to 70%. The traditional Indian diet, with its inherent emphasis on vegetarian meals, aligns with this shift, offering a viable solution to mitigating climate change.

Traditional Practices Supporting Zero Waste

Traditional Indian households have long practiced sustainability through the resourceful use of food and byproducts. Peel and seed waste from fruits and vegetables are often repurposed in chutneys, pickles, or compost. Leftovers are creatively transformed into new dishes, such as making curries with surplus vegetables. These practices contribute to a circular food economy, reducing the burden on landfills and conserving resources.

The concept of community meals, such as langars in Sikhism or annadanam in temples, exemplifies sustainable food sharing. These traditions ensure equitable food distribution while minimizing individual food waste through collective preparation and consumption. Moreover, the widespread cultural practice of eating meals by hand rather than using disposable cutlery demonstrates an eco-friendly approach ingrained in Indian traditions.

Challenges and Modern Shifts

Despite its sustainability merits, the traditional Indian diet faces challenges in modern times. The Green Revolution of the 1960s, while addressing food security, led to a dietary shift toward high-yielding crops like rice and wheat at the expense of diverse indigenous grains. This monoculture-based agriculture has resulted in soil degradation, water scarcity, and a decline in biodiversity (Pingali, 2012).

Urbanization and globalization have further accelerated the adoption of Western dietary patterns, characterized by increased consumption of ultra-processed foods, sugar, and unhealthy fats. Such dietary changes have contributed to the rising prevalence of obesity and non-communicable diseases in India (Mohan and Deepa, 2018). Additionally, the loss of culinary knowledge and traditional cooking skills among younger generations threatens the continuity of sustainable food practices (Kumar, Kulkarni & Rath, 2022).

Reviving the Traditional Indian Diet for a Sustainable Future

To harness the sustainability potential of the traditional Indian diet, concerted efforts are needed across multiple levels. Policy interventions can play a pivotal role in promoting millets, pulses, and other indigenous crops through subsidies, research, and awareness campaigns. The Indian government's declaration of 2023 as the "International Year of Millets," as endorsed by the United Nations, is a promising step in this direction (FAO, n.d.).

Educational initiatives can bridge the gap between traditional wisdom and modern nutritional science. Cooking classes, digital platforms, and community programs can encourage individuals to rediscover and adapt traditional recipes in contemporary contexts. Incorporating sustainability education into school curricula can also foster environmentally conscious eating habits from a young age.

On an individual level, consumers can make informed choices by prioritizing local, seasonal, and minimally processed foods.

Supporting farmers' markets, practicing portion control, and composting kitchen waste are simple yet impactful actions that align with traditional Indian values of sustainability.

Conclusion

The traditional Indian diet is a testament to the wisdom of ancestral practices that prioritize health, community, and harmony with nature. Its plant-based foundation, reliance on local and seasonal ingredients, and resourceful use of food make it a compelling model for sustainable nutrition. By blending these time-tested traditions with modern advancements, India can address the dual challenges of environmental sustainability and public health. As the world grapples with the consequences of unsustainable food systems, the traditional Indian diet offers a beacon of hope and a blueprint for a more balanced future.

References

- Durst, P., & Bayasgalanbat, N. (2014). Regional Symp. on "Promotion of underutilized Indigenous food resources for food security and nutrition in Asia and the Pacific", Khon Kaen, Thailand, 31 May-2 June 2012. In: Durst, P.: FAO Regional Office for Asia and the Pacific Maliwan Mansion, 39 Phra Atit Road, Bangkok 10200, Thailand.: FAO Regional Office for Asia and the Pacific.
- FAO. (2017). The future of food and agriculture – Trends and challenges Available at: <http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/472484>
- Food and Agriculture Organization of the United Nations. (n.d.). International Year of Millets 2023. FAO. <https://www.fao.org/millets-2023/en>
- Krishnaswamy, K. (2008). Traditional Indian spices and their health significance. *Asia Pacific Journal of clinical nutrition*, 17(S1), 265-268.
- Kuhnlein, H.V., Erasmus, B., & Spigelski, D., (2009). Indigenous peoples' food systems: The many dimensions of culture, diversity and environment for nutrition and health. Rome: FAO.
- Kumar, G. S., Kulkarni, M., & Rath, N. (2022). Evolving food choices among the urban Indian middle-class: a qualitative study. *Frontiers in nutrition*, 9, 844413.
- Liang, J., Wen, Y., Yin, J., et al. (2024). Utilization of plant-based foods for effective prevention of chronic diseases: A longitudinal cohort study. *NPJ Science of Food*, 8, 113.
- Mal, B., Padulosi, S., & Ravi, S. B. (2010). Minor millets in South Asia: Learnings from IFAD-NUS project in India and Nepal. Biodiversity International & The M.S. Swaminathan Research Foundation.
- Mohan, V., & Deepa, M. (2018). *Epidemiology of diabetes in India – A review*. *Journal of Diabetes*, 7(2), 59-70.
- Pingali, P. L. (2012). *Green Revolution: Impacts, limits, and the path ahead*. Proceedings of the National Academy of Sciences, 109(31), 12302-12308. <https://doi.org/10.1073/pnas.0912953109>
- Popkin, B. M. (2006). Global nutrition dynamics: The world is shifting rapidly toward a diet linked with noncommunicable diseases. *The American Journal of Clinical Nutrition*, 84(2), 289-298.
- Salis, S., Virmani, A., Priyambada, L., Mohan, M., Hansda, K., & Beaufort, C. D. (2021). 'Old Is Gold': How Traditional Indian Dietary Practices Can Support Pediatric Diabetes Management. *Nutrients*, 13(12), 4427.
- Scarborough, P., Clark, M., Cobiak, L., et al. (2023). Vegans, vegetarians, fish-eaters, and meat-eaters in the UK show discrepant environmental impacts. *Nature Food*, 4, 565-574.
- Sidiq, F. F., et al. (2022). Traditional food systems and food security: A review. *IOP Conf. Ser.: Earth Environ. Sci.*, 978, 012001.
- Stagnari, F., Maggio, A., Galieni, A., & Pisante, M. (2017). Multiple benefits of legumes for agriculture sustainability: an overview. *Chemical and Biological Technologies in Agriculture*, 4, 1-13.
- Swaminathan, S., Vaz, M., & Kurpad, A. V. (2012). Protein intakes in India. *British Journal of Nutrition*, 108(S2), S50-S58.
- Tuso, P. J., Ismail, M. H., Ha, B. P., & Bartolotto, C. (2013). Nutritional update for physicians: plant-based diets. *The Permanente journal*, 17(2), 61-66.

TRADITIONAL INDIAN FERMENTED FOODS - A LIFESTYLE ENHANCER

Dr. Anuradha Mitra

Associate Professor (Retd.), Department of Foods, Nutrition and Dietetics,
College of Home Science Nirmala Niketan, Mumbai.

Food is crucial for not only supporting bodily functions but also enhancing overall health and well-being. In this regard, key terms like 'traditional foods,' 'functional foods,' and 'nutraceuticals' are often discussed. Functional foods are whole foods that offer health benefits - nutrition, health promotion, and disease prevention.

Traditional foods are those that have been consumed for generations, are prepared in various ways across different regions, and are integral to cultural traditions and Ayurveda. These foods are less processed and contain bioactives, antioxidants, prebiotics, probiotics, and dietary fiber.

Fermentation, an age-old method, is one of the earliest food preservation techniques. One of the first fermented beverages in India was Soma juice, referenced in the Rigveda around 1500 BC. Another early fermented product was Sura, a form of wine or beer. Traditional foods reflect the culture, climate, and economic conditions of a region, with their methods and ingredients passed down through generations and adapted by migrating populations. The process of fermentation has been a cornerstone of Indian cuisine and remains one of the oldest food processing techniques known to mankind.

Fermentation typically follows two methods: natural (or spontaneous) fermentation, where microorganisms naturally present in the food or environment start the process, and culture-dependent fermentation, which involves adding starter cultures to initiate fermentation. Backslapping, a common culture-dependent method, involves using a small portion of a previous batch to ferment the next. This technique is often used in sourdough bread making.



Fermentation is mainly carried out by lactic acid bacteria (LAB), which are probiotics with health-promoting properties. These microorganisms play a crucial role in enhancing food's sensory qualities, improving its bio-enrichment, and preserving it. Fermentation enhances the nutritional value of food, increasing its content of essential amino acids, vitamins, and minerals. It also improves digestibility, taste, and aroma.

Fermented foods offer various benefits, including improved nutrition, therapeutic effects, and enhanced taste. As more people turn to health-conscious diets, fermented foods are gaining popularity and are increasingly recommended as part of a balanced diet. In India, fermented foods are central to regional cuisines. For instance, the soft idlis of the South and spicy pickles of the north are beloved across the country. The fermentation of cereals, legumes, and milk, along with processes like sprouting and malting, boosts the functional properties of these foods, making them popular staples in Indian daily diets.

The growth of fermented foods is also influenced by probiotics, where multispecies or multi-strain cultures may provide greater health benefits than single-strain cultures. These probiotics support digestion and nutrient absorption, promote gut health, and help prevent harmful pathogens.

Grain-based fermented foods, particularly rice, have become popular for their probiotic properties, and these products are gaining global recognition, especially among vegans.

Milk has also been fermented since ancient times, leading to a variety of dairy products with nutritional and therapeutic benefits. Lactic acid bacteria are essential in milk fermentation, helping preserve the product by producing lactic acid and bacteriocins, which prevent spoilage. Vegetables similarly undergo fermentation that enhances their nutritional and sensory qualities, aided by spices and herbs with antimicrobial properties. Fermented foods in India are often based on either milk or cereals and legumes, and their nutritional benefits are widely acknowledged. Popular Indian: Fermented Foods



Cereal pulse-based:

- South India : Pazhaya Sadham, Ganji Huri, Chaddannam, Tanni Annam, Ganji (fermented rice). Koozh- millet flour and broken rice porridge made in a clay pot- (L-*Leuconostoc-lactis*, W-*Confusa* etc having probiotic properties), Adai, Idli, Dosa, Challa Ponganalu, Minapa Rotte, Appam, Idiyappam, Palappam, Kallappam, Ulundhu vadai, Garelu, Pesarettu, Thalippu vadagam, Piyavo vodi-
- East & North-East: Zoudi, Chubitchi, Haria, Judima, Poita Bhat, Bori Bashi, Pakhala Bhat, Panta Bhat, Poshti Bhat, Maad Bhat, Enduri Pithe, Chakuli Pithe, Munha, Bhatootu, Dehrori, Dhuska, Marchu, Dal-Bori-
- Kinema, Tungrymbai, Hawaii-jaar, Akhuni, Peruyaana, Bekangum- These are fermented Soyabean foods (*B Subtilis*) they are rich in antioxidants, phytosterols, EAA, EFA, have easily digestible amino acids and cholesterol lowering property,
- West, North & Central India : Pez, Kanji, Udak Bhat-, Sannas, Poi, Amboli, Ghavan, Ambil, Ghavan, Amboli, Sandan, Khatta Dhokla, Khaman, Khandvi, Handvo, Mungodi, Chavli vadi Masala Wari, Siddhu, Madra, Babru, Bafla, Kodra, Bakerkhani naan, Bhatura, Kulcha, Jholi -



MILK BASED

- South India: Mor Kuzham, Perugu Annam, Majjige, Thaiyar Sadam, Peregu Vada, Majjiga Pulsu, Mosaru Kodubale (*L -Bulgaricus*, *L-Casei*, Other LAB)
- East & North -Easr: Ghol, Tok Doi, Mishti Doi, Chhena, Chhenar mishti, Mohi, Chhurpi, Sheden, Pheuja, Rosogolla, Sandesh, Chhenar Danla, Dubki kadhi, Chhena Poda, Chhenar Payesh, Dahi Boda, Raita
- West, North, & Central India: Taak, Matha, Takachi-Kadi, Dahi Vada, Dahi-Bhattu, Piyush, Shrikhand, Dahi-Koshimbir, Dabka-ni-Kadhi, Chaach, Lassi, Dahi Bhalle, Paneer,

VEGETABLE/FRUIT/NON-VEG

- South India: Gongura Pickle, Avakaya, Gongura Pachadi, Dosakaya Pachadi, Methi Vankaya, Inji Puli, Uppilitta Manga, Vathal, Moru Kootan, Urugai, Uppinakayi (LAB, L-Brevis, L-Plantarum, Yeasts etc).
- Meen Achar, Unnaka Mathi Vattichatha, Endina Chepa Natallu Pulusu, Bolingei Kollathuru, Ulranta Meen Kari, Gongura Mamsam Uragaya, Nethili Meen Thokku, These are mainly dried fish dishes and pickles. (LAB, Leuconostoc Mesenteroides, Weissella Spp,etc).
- East & North-East: Khaar, Kasundi, Achar, Gundruk, Sinki, Khattha Bathua, Mesu, Soidon, Chutney, Ziang saag Anishi- These are mainly bamboo shoots, leafy and root vegetables, Doi-Maach, Sutki Mach, Ngari, Hentak, Nathu, Tungtap, Singju – These are fish/dried fish and pickles.
- West, North & Central India: Sandgi Mirchi, Dahi-Mirchi, Lonche, Karvanda-lonche, Athana-marcha, Kairi-athano, Chhundo, Gonda -achar, Gajar ki Kanji, Shalgam achar, Chukander kanji, Ker-Sangri athana, Sungta-che- lonche, suka bombil, suka bangda lonche, Kori Kempu, Sungta-che- Balchow, Meat Molho, Pork pickle- These are fresh/dried fish pickles & meat pickles

SWEETS & DESSERTS: Jalebi, Imarti, Shrikhand, Sel-roti, Anarse, Mishti Doi, Ragi Manni, Chak Hao Kheer, Pithe, Chenar payesh etc.

To sum up, one should not overlook the significance of fermented foods in Indian gastronomy, a culinary delight, gratification for the palate, and a nutritional gem, it is extensively packed with value-added properties that benefit mankind to achieve the goal of a healthy lifestyle. A myriad of diverse dimensions of fermented foods can be seen throughout our country and as such is like a boon. The fraternity of health ambassadors, nutritionists, and dietitians should suggest the use of region-friendly functional foods to enhance the intake of pre and probiotics for improving overall health. There is more than sufficient scientific evidence to indicate that certain naturally occurring nutritive and some non-nutritive substances of spices, whole grain cereals and legumes, vegetables, fruits, sprouted grains, milk, and to an extent fish that is fermented may prevent or reduce the risk of some chronic diseases.

Fermentation adds diversity, highlights palatability, enhances flavour, increases digestibility, improves immunity, lowers inflammation, adds nutritional benefits by increasing proteins, vitamins, essential amino acids, and fatty acids and often upgrades the therapeutic value of the food, thus apart from ensuring normal physiological functions in the body such as improving gut health and the immune system, it aids in weight management, better skeletal health, especially in older women and also contributes to reduction of blood cholesterol, reduction of oxidative stress, thereby reducing the risk of cardiovascular diseases, inflammatory diseases, and many types of cancers, diabetes, neurodegenerative diseases.

Due to globalization and urbanization people are more aware of the importance of good health resulting in the need for “super” foods, and functional foods, new terms have emerged highlighting newer needs for a fast-paced stressful life, and fermented familiar foods could be one of the answers. The rise of urbanization and lifestyle changes have led to a reduction in traditional methods of fermentation, such as the use of clay pots and bamboo baskets. Modern fermentation methods such as the use of stainless steel tanks and refrigeration are becoming increasingly common.

Also modern technology has impacted Indian fermentation through the introduction of new techniques, for example, in recent years the use of starter cultures and probiotics has become more prevalent. The quality and consistency of fermented foods has been improved by these new techniques, as well as aided to increase their health benefits. Interestingly, the Indian fermentation business sector both, at the large scale and cottage industry level has excellent economic prospects as well as health advantages.

Suggested Reading

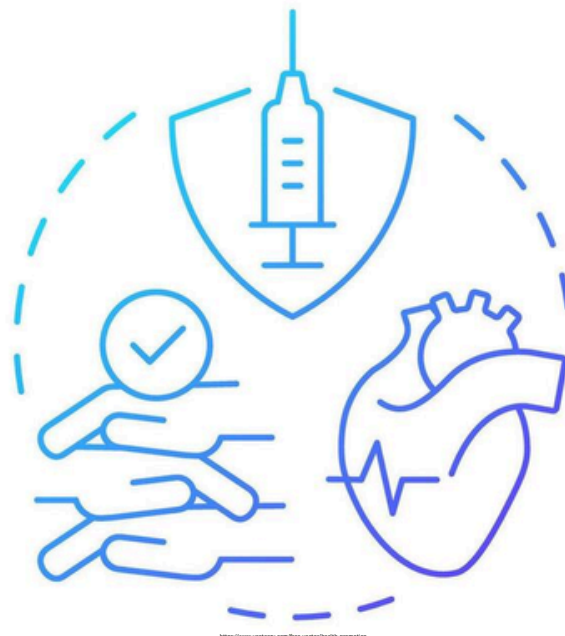
- Achaya, K.T. 1994. Indian Food: A Historical Companion. Oxford University Press, Delhi.
- Arthashastra - World History Encyclopedia. (n.d.) <https://www.worldhistory.org/Arthashastra/>
- Buziau et. al., 2019, Buziau, A. M., Soedamah-Muthu, S. S., Geleijnse, J. M., & Mishra, G. D. (2019). Total Fermented Dairy Food Intake Is Inversely Associated with Cardiovascular Disease Risk in Women. *The Journal of Nutrition*, 149(10), 1797–1804. <https://doi.org/10.1093/aj/nxz128>
- D. Charalampopoulos, S.S. Pandiella, C. Webb Growth studies of potentially probiotic lactic acid bacteria in cereal-based substrates *J Appl Microbiology* 92 (2002), pp. 851–859
- D.C. Lin Probiotics as functional foods *Nutr Clin Pract*, 18 (2003), pp. 497–506 Cross ref View in Scopus Google Scholar
- Devi and Shetty in 2020 Devi, P. B., & Shetty, P. H. (2020). Traditional preserved and fermented foods and their nutritional aspects. *Nutritional and Health Aspects of Food in South Asian Countries*, 61–73. <https://doi.org/10.1016/B978-0-12-820011-7.00006-X>
- El Sohaimy S.A (2012) Functional foods and nutraceuticals modern approach to food science *World Appl Sci J* 20 691 708
- FAO (2008) Promotion of Traditional Regional Agricultural and Food Products: A Further Step Towards Sustainable Rural Development. <ftp://ftp.fao.org/docrep/fao/meeting/013/k2473E.pdf>
- Ghavami et. al., 2020). Ghavami, A., Ziaei, R., Moradi, S., Sharifi, S., Reza Moravejolahkami, A., Chaffari, S., Irandoost, P., Khorvash, F., Mokari-yamchi, A., Nattagh-Eshstivani, E., & Roshanravan, N. (2020). Potential of favourable effects of probiotics fermented milk supplementation on blood pressure: a systematic review and meta-analysis. *International Journal of Food Properties*, 23(1), 1925–1940. <https://doi.org/10.1080/10942912.2020.1833030>

ROLE OF FUNCTIONAL FOODS IN DISEASE PREVENTION AND HEALTH PROMOTION

Ms. Shilpa Mittal

Founder Shilpsnutrilife

Anjali Agrawal- (Team Shilpsnutrilife)



Introduction

Functional foods are foods that not only provide basic nutrition but also contribute to health benefits beyond essential nutrition. These foods contain bioactive compounds—such as vitamins, minerals, fiber, and antioxidants—that may help in the prevention and management of various diseases. The rising interest in functional foods stems from growing awareness of their potential to reduce the risk of chronic diseases, improve overall health, and even aid in the treatment of certain conditions. This chapter explores the role of functional foods in disease prevention and treatment, examining how bioactive compounds in these foods may interact with the body to exert protective effects.

The ICMR along with other scientific communities around the globe defines functional foods as foods that provide health benefits beyond basic nutrition and may help prevent or manage diseases and promote overall well-being (Clifford & Johnson, 2018). In India, these foods typically include traditional Indian ingredients and formulations with bioactive components, such as spices, herbs, and fermented products.

Categories of Functional Foods

A. Naturally Occurring: These are foods consumed in their natural form that inherently contain bioactive compounds beneficial to health. These include:

1. Fruits and Vegetables- Berries are rich in antioxidants, and phenolic compounds including flavonoids, and Citrus fruits are high in vitamin C and flavonoids.

Cruciferous vegetables contain Sulforaphane and tomatoes contain lycopene, a key carotenoid with strong antioxidant properties (Essa *et.al.*, 2021).

2. Nuts, Seeds and fatty fishes- Walnuts, flax seeds, salmon, mackerel, and sardines are high in omega-3 fatty acids, and seaweed and algae are rich in iodine, fiber, and antioxidants (Essa *et.al.*, 2021).

3. Spices - Spices contain bioactive compounds with antioxidant, antimicrobial, and anti-inflammatory properties. E.g. curcumin in turmeric, allicin in garlic, and gingerol in ginger are powerful anti-inflammatory compounds. and cinnamaldehyde, cinnamic acid, and cinnamate in cinnamon that may help regulate blood sugar levels (Martos, 2011).

2. Fortified foods: Fortified foods are the ones in which additional bioactive nutrients are added to a food, which may help in overcoming the nutritional deficiencies in a population. For e.g. Iodine is added to common salt to overcome the condition of goiter in India.

3. Probiotics are live microorganisms that confer a health benefit on the host when administered in adequate amounts. Dietary substances that nurture specific changes in the composition and/or activity of the gastrointestinal microbiota (favoring beneficial bacteria), thus conferring benefit(s) upon host health are known as Prebiotics. Products that contain both probiotics and prebiotics are known as Synbiotics (Ciorba, 2012).

Probiotic and Prebiotic Foods modify the gut microbiota and improve the digestive health of a person. Usually, yogurt contains bacteria like lactobacillus and bifidobacterium, both of which improve digestive health. Other sources of probiotics are Yogurt & Kefir, Kimchi & Sauerkraut, Miso & Tempeh.

4. Nutraceuticals: They are bioactive components derived from food in a concentrated manner into capsules and powders (nutrition + pharmaceutical) to address targeted health issues. e.g. Daily almond is consumed as an antioxidant, but in the form of a capsule, it can be a powerful vitamin E-rich capsule addressing inflammation in the body. Similarly, Curcumin is a powerful antioxidant that if taken in smaller proportion daily helps in prevention. However, the same if taken in the form of a capsule can be used in the treatment of diseases like cancer.

Role of functional foods in health management:

There is a lot of evidence now, that we have on the role of functional foods in preventive health care and also the management of metabolic health conditions (MGM University, n.d.).

We have functional foods that have the maximum role to play in cardiovascular health and improve the quality of life in cancer patients. They are rich in omega-3 fatty acids, fiber, plant sterols, polyphenols, powerful antioxidants like lycopene, flavonoids, also minerals like zinc, selenium magnesium, etc. all of which help promote health.

1. Functional Foods and Cardiovascular Disease

Cardiovascular diseases (CVDs), including heart disease, stroke, and hypertension, are leading causes of morbidity and mortality worldwide. Functional foods can play a significant role in preventing and managing CVDs.

Omega-3 Fatty Acids: Found in fatty fish (e.g., salmon, mackerel), flaxseeds, and walnuts, omega-3 fatty acids reduce inflammation, lower blood triglyceride levels, and improve cholesterol profiles. Their consumption has been shown to reduce the risk of heart attacks and strokes by enhancing endothelial function and reducing blood clotting.

Fiber-Rich Foods: Whole grains, legumes, fruits, and vegetables are rich in dietary fiber, which

helps to lower LDL cholesterol levels and improve blood pressure regulation. Fiber also contributes to weight management, another important factor in reducing the risk of CVD.

Antioxidant-Rich Foods: Berries, citrus fruits, and dark leafy greens are high in antioxidants like flavonoids and vitamin C, which protect against oxidative stress and inflammation, both of which contribute to cardiovascular damage [Rasheed & Jiang, 2019 ; Basu *et.al.*, 2010].

Grapes are rich in fibers, polyphenols, and flavonoids and are a potent controller of obesity and inflammation, especially grape seed extract (GSE). A recent study stated that 300 mg of GSE or 46 g of whole grape powder for four weeks lowered the total cholesterol by 6.1%, HDL-C by 7.6%, and LDL-C by 5.9%. The reduction in the total bile acid was equal to 40.9%, indicating the modification of cholesterol/bile acid metabolism (Basu *et.al.*, 2023).

2. Functional Foods in Cancer Prevention

Cancer is a leading cause of death globally, and functional foods have shown promise in reducing the risk of developing certain cancers. Antioxidants like polyphenols, lycopene, and flavonoids prevent carcinogenesis by combating free radicals.

Cruciferous Vegetables: Broccoli, cauliflower, Brussels sprouts, and cabbage contain compounds like sulforaphane and indoles, which have been shown to have anticancer properties. These bioactive compounds help detoxify carcinogens, inhibit tumor growth, and regulate genes associated with cell cycle control and apoptosis (Essa *et.al.*, 2021).

Tomatoes: Rich in lycopene, a carotenoid with antioxidant properties, tomatoes are linked to a reduced risk of prostate and other cancers. Lycopene helps prevent DNA damage and reduces oxidative stress, both of which can contribute to cancer development (Essa *et.al.*, 2021).

Turmeric: Curcumin, the active compound in turmeric, has potent anti-inflammatory and antioxidant properties. Studies suggest that curcumin can inhibit the growth of cancer cells, particularly in cancers of the digestive tract, including colorectal cancer (Khan & Ali, 2020).

Similarly, Green tea (3 to 5 cups/day) has been shown to reduce oxidative stress and tumor tissue proliferation (Boehm *et.al*; 2009)

Increased fiber intake up to 5 gm over and above the normal recommendation has been shown to reduce risk in melanoma patients undergoing immunotherapy. (National Cancer Institute, n.d.)

Studies recommend that 1-3 gms of EPA and DHA from fatty fish or capsules have been beneficial in breast and colorectal cancers (Brenner *et.al*, 2018).

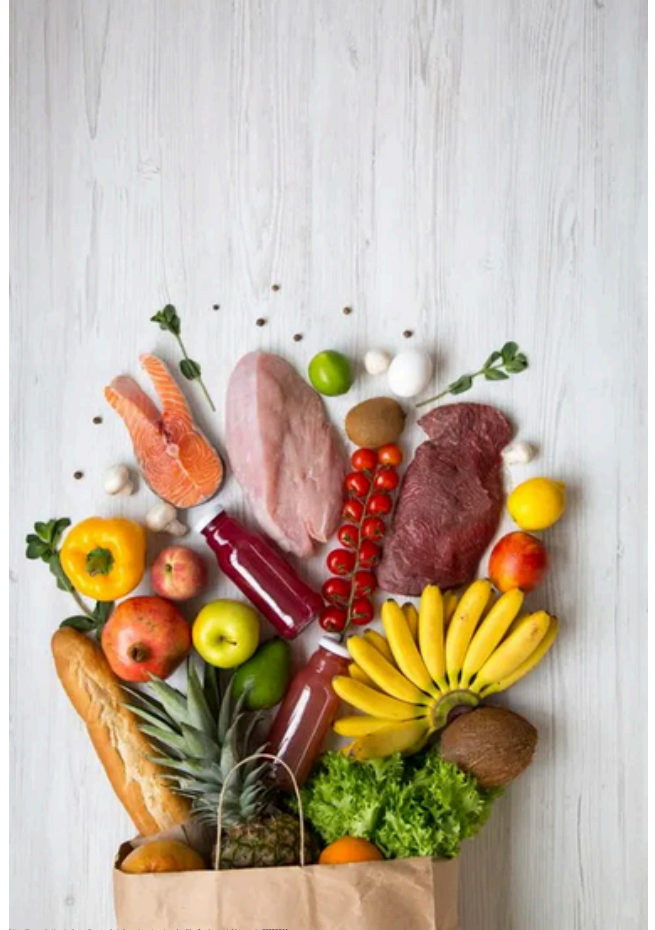
Both garlic (*Allium sativum*) with bioactive ingredients such as Allicin, S-Allylcysteine (SAC), and Diallyl Disulfide (DADS), Ginger (*Zingiber officinale*) with bioactive ingredients such as Gingerol, Shogaol, and 6 paradol have long been valued not only for their culinary uses but also for their anti-cancer properties. Research has shown that these two plants contain bioactive compounds that exhibit anticancer potential through various mechanisms, including antioxidant activity, anti-inflammatory effects, apoptosis induction, and the inhibition of tumor cell proliferation (Mahomoodally *et.al*, 2021).

3. Functional foods and Diabetes Management

Type 2 diabetes is a chronic condition characterized by insulin resistance and elevated blood sugar levels. Functional foods can help prevent and manage diabetes by regulating blood sugar levels and improving insulin sensitivity.

Whole Grains and Legumes: Foods like oats, quinoa, lentils, and beans are rich in soluble fiber and have a low glycemic index. These foods help regulate blood sugar levels by slowing the absorption of glucose and reducing post-meal spikes in blood sugar.

Cinnamon: Studies suggest that cinnamon may improve insulin sensitivity and help regulate blood sugar levels. Its active compounds, including cinnamaldehyde, have been shown to increase glucose metabolism in cells. Around 0.5 to 2 tsp of ground cinnamon may help in improving fasting blood sugar levels and insulin sensitivity (Belvins *et.al*;2007) and 5 to 50 gms of powdered fenugreek seeds have been shown to slow glucose absorption (Kassaian *et.al*, 2009).



4. Functional foods and immunity.

A strong immune system is vital for fighting infections and preventing illness. Functional foods can help enhance immune function and reduce the risk of infections.

Zinc found in nuts, seeds, whole grains, and legumes in the dosage of 8 -11mg /day has proven to be beneficial. A high dosage of up to 40 mg has also been used under supervision to boost immunity (Rink & Gabriel, 2000).

Citrus Fruits: High in vitamin C, citrus fruits like oranges and lemons are known to enhance immune function. Vitamin C supports the production and function of white blood cells, which are essential for the immune response. Vitamin C especially in the form of amla, guava, and bell peppers has shown positive outcomes in boosting immunity. (75 -90 mg/day being normal intake. It can be boosted up to 2000 mg without side effects) (Shmerling, 2025).

Green Tea: Rich in polyphenols, particularly epigallocatechin gallate (EGCG), green tea has been shown to enhance immune function and reduce inflammation, providing protective effects against infections and chronic diseases.

5. Functional Foods in Neuroprotection and Cognitive Health

Cognitive decline and neurodegenerative diseases, such as Alzheimer's and Parkinson's, are major concerns, particularly in aging populations. Functional foods may help protect brain health and reduce the risk of these conditions.

Fatty Fish: Rich in omega-3 fatty acids, particularly DHA (docosahexaenoic acid), fatty fish like salmon and sardines are known to support brain health, improve cognitive function, and reduce the risk of dementia (Patted *et.al*, 2024).

Curcumin (Turmeric): Curcumin also has potential neuroprotective properties. It has been shown to reduce inflammation in the brain, improve mood, and potentially delay the onset of neurodegenerative diseases (Genchi *et.al*, 2024).

Mental Well-being: Foods rich in magnesium and tryptophan enhance mood and reduce stress. Leafy greens along with flax seeds, chia seeds, and dark chocolate (cocoa more than 70 %) are functional foods for mental health.

6. Functional food in Gut Health:

Prebiotics and probiotics maintain healthy gut microbiota. Probiotics are known to keep a balance of the gut microbiota and maintain the gut barrier. A dosage of 1 to 10 billion CFUs per day is shown to be beneficial (Ferrari *et.al*, 2022)]. This can be achieved by having a cup of curd every day or including fermented products such as pickles, and carrot-beetroot kanji in addition to including Carrot -beetroot kanji water or Khamiri roti from North India; Sol Kadhi or Handvo from Western counterparts; Appam or Ambali from Southern India and Pakhala Bhata or Tapai from eastern India etc. in our diet Couple this up with prebiotics like banana, garlic, and onion in your diets to support probiotic growth.

Dosage and bioavailability

The dosage of functional foods however varies depending on the condition, whether it is taken for prevention or treatment of metabolic comorbidities. e.g., Curcumin or 'Haldi' is usually taken around 500 mg to 1000mg ($\frac{1}{2}$ to 1 tsp /day in divided doses for prevention. The same curcumin needs to be taken in the dosage of 1500 to 2000 mg /day for inflammatory conditions like arthritis or cancer (Jurenka, 2009)

Also considering the condition of a patient the bioavailability of a particular food is taken into consideration and depending on that the component is introduced in its natural form or a nutraceutical .e.g. for prevention; garlic is used in our daily cooking as an herb; for immune-boosting properties the same garlic needs to be grated on the food such as a curry or dal, just before consumption, or in some cases capsules are introduced for maximum benefits.

There are many studies stating the beneficial effects of functional foods. A recent study on the role of berberine in reducing hepatic steatosis and inflammation recommended a dosage being 500 mg /day. (Cicero *et.al*, 2018)

Similarly, Vitamin E in the dosage of 800 IU/day has been shown to reduce the risk of myocardial infarction and improve liver function (Cicero *et.al*, 2018)



Challenges and Limitations:

In today's times we are between two main challenges concerning functional foods, Consumer awareness v/s Misleading claims.

On one hand, we have people who are unaware of the benefits of the bioactive compounds found in the foods that we commonly consume, and on the other hand, there are a set of people who get carried away with the unverified information available on social media or imparted by influencers who may not be genuine or educated enough to propagate whatever they deliver. Either the consumer does not take it in the right dosage or on the other hand they self-supplement them with overdoses falling prey to false claims leading to disastrous medical conditions.

For e.g. Turmeric has a bioactive compound called Curcumin. It has anti-inflammatory and antioxidant properties. However, the use of only turmeric in any amount cannot cure cancer cure diabetes, or lead to weight loss. Still, many supplements made false claims, moreover people started using them in large amounts in their morning drinks to their tea, coffee, etc. Leading to detrimental blood thinning effects, GI issues, etc. Please note that curcumin requires a bioenhancer piperine from black pepper without which it cannot be absorbed. This information was not well-delivered by the influencers leading to excess intake of turmeric, also many curcumin supplements were flagged by Indian regulatory authorities for these false claims.

The cost factor, in a developing country like ours where we are facing a double burden of malnutrition and being genetically predisposed to metabolic disorders; both being a big concern. The high cost of organic foods and fortified options cannot be borne by many; however, the government is taking measures to help in prevention such as extending the universal supply of fortified rice (fortified with iron, folic acid, and B12) across all welfare schemes, including the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKY), Integrated Child Development Services (ICDS), and PM POSHAN (formerly Mid-Day Meal scheme) extended from July 2024 to December 2028.

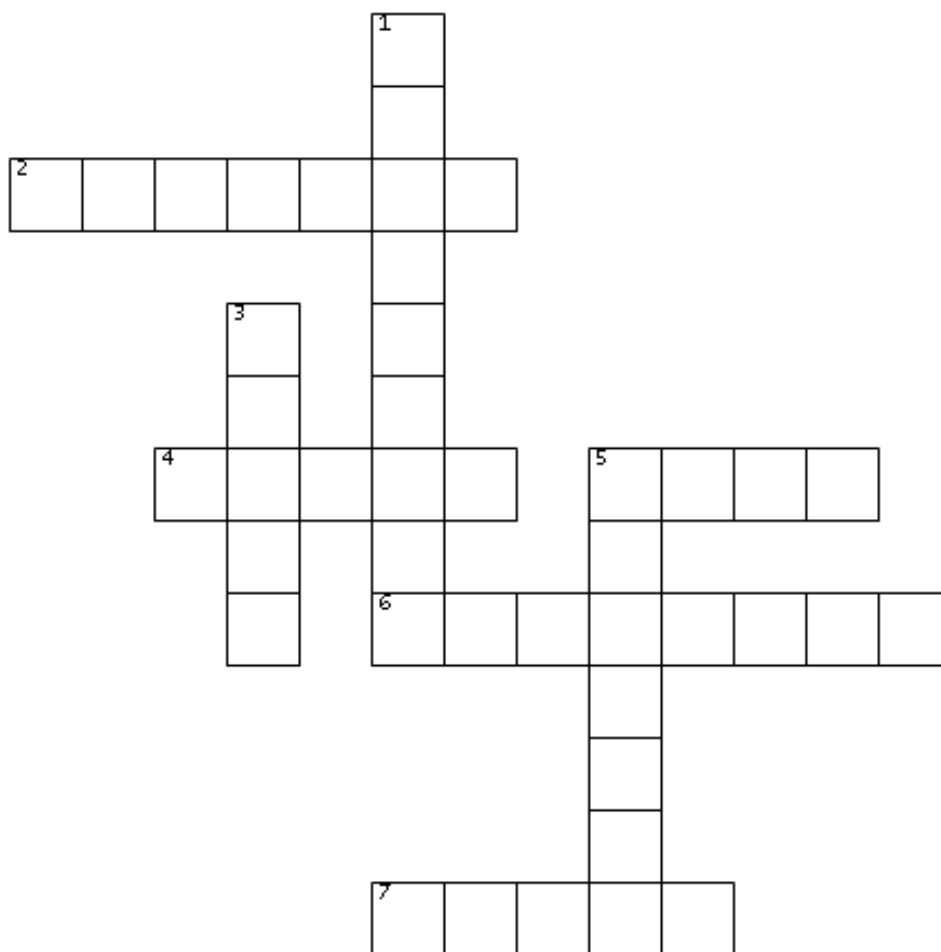
We as torchbearers of health should embrace Modern science with traditional wisdom by combining and spreading awareness in this collaborative field of functional foods and pave the way for a healthier and resilient future.

References:

- Litwin, N., Clifford, J., & Johnson, S. (2018, March). Functional health foods (Fact Sheet No. 9.391). Colorado State University Extension. Retrieved from <https://extension.colostate.edu/topic-areas/nutrition-food-safety-health/functional-foods-for-health-9-391/>
- Essa, M. M., Bishir, M., Bhat, A., Chidambaram, S. B., Al-Balushi, B., Hamdan, H., Govindarajan, N., Freidland, R. P., & Qoronfle, M. W. (2021). Functional foods and their impact on health. *Journal of Food Science and Technology*, 60(3), 820. <https://doi.org/10.1007/s13197-021-05193-3>
- Martos M, Ruiz-Navajas Y, Fernández-López J, Pérez-Alvarez JA. Spices as functional foods. *Crit Rev Food Sci Nutr*. 2011 Jan;51(1):13-28. doi: 10.1080/10408390903044271. PMID: 21229415.
- Ciorba, M. A. (2012). A Gastroenterologist's Guide to Probiotics. *Clinical Gastroenterology and Hepatology* : The Official Clinical Practice Journal of the American Gastroenterological Association, 10(9), 960. <https://doi.org/10.1016/j.cgh.2012.03.024>
- MGM University. (n.d.). Nutraceutical and functional foods – An overview. Pulsus Group. Retrieved from <https://www.pulsus.com/scholarly-articles/nutraceutical-and-functional-foods-an-overview-10321.html>
- Rasheed, M., & Jiang, J. (2019). The effects of flavonoids in cardiovascular diseases. *Nutrients*, 11(8), 1929. <https://doi.org/10.3390/nu11081929>
- Basu, A., Rhone, M., Rhone, S., & Rhone, J. (2010). Berries: Emerging impact on cardiovascular health. *Nutritional Reviews*, 68(3), 168-177. <https://doi.org/10.1111/j.1753-4887.2010.00288.x>(URL: <https://pubmed.ncbi.nlm.nih.gov/31446482/>)
- Basu, A., Rhone, M., Rhone, S., & Rhone, J. (2023). Concentrated grape powder consumption modulates cholesterol metabolism and homeostasis in healthy subjects. *Journal of Nutritional Science and Health*, 12(1), 98-106. <https://doi.org/10.1007/JNSH1234567>
- Khan, M. A., & Ali, S. (2020). Curcumin and its derivatives as potential therapeutic agents in cancer. *Nutrients*, 12(5), 1375. <https://doi.org/10.3390/nu12051375>
- Boehm, K., Kienle, G. S., Dobos, G., & Langhorst, J. (2009). Green tea and the prevention of cancer: A systematic review of the literature. *Nutrients*, 1(1), 1-10. <https://doi.org/10.3390/nu1010001>
- National Cancer Institute. (n.d.). Functional foods and cancer prevention. National Cancer Institute. <https://www.cancer.gov/about-cancer/causes-prevention/risk/diet/functional-foods-fact-sheet>
- Brenner, D. R., Ruan, Y., Shaw, E., & Friedenreich, C. M. (2018). Omega-3 polyunsaturated fatty acids and cancer risk: A systematic review and meta-analysis. *Nutrients*, 10(3), 308. <https://doi.org/10.3390/nu10030308>
- Mahomoodally MF, Aumeeruddy MZ, Rengasamy KRR, Roshan S, Hammad S, Pandoheer J, Hu X, Zengin G. Ginger and its active compounds in cancer therapy: From folk uses to nano-therapeutic applications. *Semin Cancer Biol*. 2021 Feb;69:140-149. doi: 10.1016/j.semcancer.2019.08.009. Epub 2019 Aug 11. PMID: 31412298.
- Blevins, S. M., Leyva, M. J., Brown, J. E., Wright, J. J., & Whistler, S. (2007). Effect of cinnamon on glucose and lipid levels in non-insulin-dependent type 2 diabetes. *Functional Foods in Health and Disease*, 1(3), 70-77.
- Kassaian, N., Aslani, M. R., & Kassaian, S. (2009). Effect of fenugreek seeds on blood glucose and lipid profiles in type 2 diabetes mellitus patients. *Functional Foods in Health and Disease*, 9(1), 34-39. <https://doi.org/10.22157/ffhd.v9i1.34>
- Rink, L., & Gabriel, P. (2000). Zinc and the immune system. *Proceedings of the Nutrition Society*, 59(4), 541-552. <https://doi.org/10.1017/S0029665100000781>
- Gammoh, N. Z., & Rink, L. (2017). Zinc in infection and inflammation. *Nutrients*, 9(6), 624. <https://doi.org/10.3390/nu9060624>
- Shmerling, R. H. (n.d.). What's the right amount of vitamin C for me? Harvard Health Publishing. Retrieved January 28, 2025, from <https://www.health.harvard.edu>
- Patted, P. G., Masareddy, R. S., Patil, A. S., Kanabargi, R. R., & Bhat, C. T. (2024). Omega-3 fatty acids: A comprehensive scientific review of their sources, functions and health benefits. *Future Journal of Pharmaceutical Sciences*, 10(1), 1-11. <https://doi.org/10.1186/s43094-024-00667-5>
- Genchi, G.; Lauria, G.; Catalano, A.; Carocci, A.; Sinicropi, M.S. Neuroprotective Effects of Curcumin in Neurodegenerative Diseases. *Foods* 2024, 13, 1774. <https://doi.org/10.3390/foods13111774>
- Bedu-Ferrari, C., Biscarrat, P., Langella, P., & Cherbuy, C. (2022). Prebiotics and the Human Gut Microbiota: From Breakdown Mechanisms to the Impact on Metabolic Health. *Nutrients*, 14(10), 2096. <https://doi.org/10.3390/nu14102096>
- Jurenka, J. S. (2009). Anti-inflammatory properties of curcumin, a major constituent of *Curcuma longa*: A review of preclinical and clinical research. *Alternative Medicine Review*, 14(2), 141-153. Retrieved from <https://www.altmedrev.com>
- Cicero, A. F. G., Colletti, A., & Bellentani, S. (2018). Nutraceutical approach to NAFLD. *Frontiers in Medicine*, 10(9), 1153. <https://doi.org/10.3389/fmed.2018.01153>
- Barbagallo, M., & Dominguez, L. J. (2021). An update on magnesium and bone health. *ResearchGate*. https://www.researchgate.net/publication/351370127_An_update_on_magnesium_and_bone_health

QUIZ- INDIAN FUNCTIONAL FOODS

Simran Rojario -Maniben Nanavati Women's College

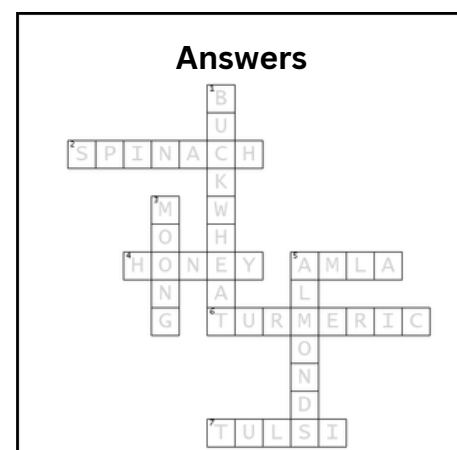


Across

2. Leafy green, commonly cooked in saag, is rich in iron and good for boosting hemoglobin
4. Golden liquid is produced by bees and is often used as a natural sweetener in Ayurvedic remedies
5. Indian fruit is rich in Vitamin C and is often used in chyawanprash
6. The Indian spice that gives curry its yellow color and is known for its antioxidant properties
7. Indian superfood is known as a natural antibiotic and is used in kadha to boost immunity

Down

1. Indian grain, often eaten during Navratri, is gluten-free and rich in fiber
3. Indian lentil, when sprouted, is considered a powerhouse of nutrients and aids digestion
5. The Indian nut that is high in protein, rich in healthy fats, and often used in sweets like kheer and laddoos



Crack the Clues, Solve the Mystery ?

Riya Prasad - Maniben Nanavati Women's College

- I'm tiny and black, but my benefits shine, Rich in fiber and omega-3, I'm divine. What am I?

- I'm a warm winter treat, made of ghee and jaggery, With sesame and peanuts, I boost energy. What am I?

- I'm small, round, and green, sprouted or steamed, Rich in protein, I'm every health nut's dream. What am I?

- I'm a fruit that's tart, with vitamin C, I keep colds away; you can trust me. What am I?

- I'm orange or purple, a root from the earth, Beta-carotene's my gift, for skin and vision's worth. What am I?

- I'm something yellow and high in potassium, A favorite of athletes for energy and passion. What am I?

- I'm golden and sweet, nature's energy pack, Full of natural sugars to bring your strength back. What am I?

- I'm a tiny seed, oval and small, A superfood loved by one and all. In smoothies and salads, I make my mark, Packed with nutrients to fuel your spark. Rich in omega-3s, I'm heart health's friend, And I help keep blood sugar steady till the end. With fiber so high, I slow down the rise, Of glucose levels— I'm healthy and wise.

- I'm red and juicy, with lycopene to share, I'm great for your heart and skin's repair. What am I?

- I'm tiny and black, full of fiber and flair, Rich in antioxidants, I show that I care. What am I?

Answers:
1) Garden cress seeds 2) Til Laddoo (Sesame Sweet) 3) Green Gram (Moong Dal) 4) Orange 5)
Sweet Potato 6) Banana 7) Honey 8) Flaxseeds 9) Tomato 10) Chia seeds

HEALING AND HARMONY

Tanaya Tamore - Lifeness Science Institute (LSI)

In a faraway land was the kingdom of King Anmol. His land spread across vast plains, surrounded by rivers and towering mountains. Nature adorned his lands with unique species of plants, fertile soil, fresh water to drink, and clean air to breathe. At the top of a hill stood the King's palace, with strong architecture and delicately carved pillars covered in gold. The grand doors opened into the courtroom, where the King's magnificent throne sat high, embedded with precious gems. Around him sat a group of ministers, discussing the kingdom's affairs.

But it is said, "We often fail to value what we have until it's gone." Exploitation and greed began to strip nature of its life. The people no longer believed in eating food offered by their mother, the Earth. Instead, they consumed food devoid of life and filled with negativity. Their disrespect grew so great that they ate when they pleased, ignoring the rhythms of nature. They even neglected their bodies by sleeping late and moving just enough to sustain themselves.

Mother Nature could not bear to watch her children destroy what she had given them. The air slowly turned poisonous, damaging the people's bodies. Their skin grew dark and frail, their hair wilted like trees in the cold winter, and their stomachs bloated with discomfort. It seemed as if a fire was burning in their hearts, like trees burning in a wildfire.

The people, stubborn in their ways, refused to listen to the warnings of Mother Nature. They continued their harmful habits and grew more ill. But a mother is always a mother—she cannot retaliate, even when hurt.

It's simply not who she is. So, she decided to help her children. In the courtyard, surrounded by frail ministers sitting in huge chairs, King Anmol sat with a heavy heart. His once thriving kingdom was now fading. His mind couldn't focus on the discussions around him.

Minister 1: "Your Highness, perhaps selling more firewood to the neighbouring country will help. The king might send us cows to milk."

Minister 2: "Your Highness, we could build a dam to store water for the future."

But the King could barely hear them. His thoughts were consumed with one question:

How can I save my kingdom?

He whispered,

"O God, please help us."

Suddenly, the room grew colder, and a soothing breeze filled the air. A bright light shone in, and a lady appeared in a grand gown. The ministers squinted, barely able to see due to the brightness. As she approached, the light faded, and they saw a dark reddish-skinned lady with long, curly hair. Her gold headband sparkled, and her gown, colored like kokum fruit, trailed long behind her.

She bowed to the King. "Your Highness, I am Garcinia. People in the East lovingly call me kokum."



"I was passing through your land, once called Nature's heaven, and I could not bear to see the suffering. I saw people frail and dull, and I felt I must come to help."

"I am a healer in the East, and I believe I can help your kingdom."

The King replied with gratitude, "Ms. Garcinia, welcome to my land. I apologize that you had to witness this terrible sight."

Garcinia looked at the people and softly said, "I see the suffering in your people, my King. But healing begins with the heart—both the land and its people must change together. Only then will nature find its way back to you."

Minister 3: "What improvements do you think we need? Do you believe we are ill?"

Minister 1: "Who are you to come here and think you can save us?"

The King, in despair, spoke, "Oh, Garcinia, please! My kingdom is dying before my eyes. How can we heal what we've lost?"

Garcinia nodded and explained, "There is a simple remedy that nature offers. The fruit I wear, kokum, is filled with healing properties. Anyone who consumes it will begin to feel the changes within."

The people were skeptical, and one of them asked, "How can a simple fruit restore what we've lost?"

Garcinia smiled, "Nature's gifts have immense power. What we eat, when we eat, and how we treat the earth shape who we are. Follow nature's rhythm, and you will begin to feel the change within yourselves."

"However," Garcinia continued, "this gown will only regenerate if the people of this land choose to follow nature's path—eating what Mother Nature offers and respecting her timing. If you ignore this, the gown will disappear, and your chance to return to your former glory will be lost."

As the people of King Anmol's kingdom began to follow the Garcinia's advice, they began to notice changes in them. Their dull skin caused by the pollution became brighter like the morning sun breaking through clouds. Hair, once brittle became lustrous like the evergreen forests. People began to trust the powerful benefits of Kokum.

Garcinia explained "Kokum nourishes your skin and hair. Its anti-oxidant properties can protect you from the poisonous air and restore your health. Kokum soothes the digestive system and cools the fire within it. It is nature's way of giving to heal you from within.

The people began eating wholesome foods as before, slept at the right time, and integrated nature's rhythm. The air grew fresher, the skin and hair got healthier, and digestive issues resolved. The people were back to the glory once more. The King praised Garcinia. As a token of gratitude to her, he granted her wish that they shall plant kokum throughout the lands and not destroy our mother nature.

The subjects learned a good lesson- When they honor nature, it honors them. Nature provides us with everything we need to thrive, but only if we respect and care for her gifts.



Legacy on a plate

**Zaynab Chunawala- Anjuman
Begum Jamila Haji Abdul Haq
College Of Home Science**

From earthen pots and seasoned hands,
Flows the wisdom of ancient lands.
A sip of buttermilk, smooth and light,
Cools the fire, sets things right.

Turmeric glows - a healer true,
Golden magic in every hue.
Moringa whispers, strong and wise,
Iron-rich, a hidden prize.

Ferments bubble, grains take rise,
A feast of life in every slice.
Ghee drips slow, a silken stream,
Fuel for strength, a timeless dream.

Spices dance, a fragrant song,
Keeping us well, keeping us strong.
Roots run deep, their gifts endure,
Traditional foods- pure and sure.



<https://www.alamy.com/stock-photo/mix-of-indian-spices.html#age=4&ortry=relevant>



Symphony of flavours

**Bhoomi Chanda-
Lifeness Science Institute (LSI)**

In India's diverse culinary landscape so bright,
Lies a world of functional foods, a true delight.
From spices to herbs, and grains so fine,
Each ingredient tells a story of health and design.

In Rajasthan's land of kings and pride,
Dal baati churma, a traditional treat, resides.
Rich in fiber, vitamins, and minerals to eat,
A nutritious delight, that can't be beat.
Every mouthful whispers tales of yore,
A royal feast that leaves you wanting more.

But venture beyond, where the rivers weave,
To Gujarat's vibrant streets, where flavors never leave,
Where food is a thrill,
Dhokla, fafda, and undhiyu, stand still.
Packed with antioxidants, vitamins, and minerals so bright,
A symphony of flavors, in every single bite.

From turmeric to cumin, coriander to methi,
Each ingredient tells a story of health and harmony.
In the traditional foods of Rajasthan and Gujarat, lies a tale,
Of ancient wisdom, passed down through generations
without fail.

A tale of nutrients, flavors, and love,
A culinary heritage, sent from above.
May these traditional foods forever thrive,
And nourish our bodies, with their timeless, vibrant stride.

Garlic kheer



Heena Hussain (SYFSN)
Smt. P.N.Doshi Women's College,
Ghatkopar

Benefits:

- Reduce severity of common cold symptoms.
- Help managing cholesterol, blood pressure.
- Support bone health.
- Aid weight management.

Ingredients:

- 1/2 cup rice(or vermicelli if preferred)
- 4-5 garlic cloves, finely chopped
- 4 cups full-fat milk
- 1/4 cup sugar (adjust to taste)
- 2 tbsp ghee (clarified butter)
- 1/4 tsp saffron strands (optional)
- A pinch of salt (optional, for balance)
- Chopped nuts (almonds, cashews) for garnish (optional)

Directions:

- Cook rice or vermicelli in water until soft; if using vermicelli, roast it in ghee before adding milk.
- Sauté garlic in ghee until golden brown and aromatic.
- Prepare the kheer base by adding cooked rice/vermicelli to the pan with garlic, then mix in milk.
- Simmer for 15–20 minutes, stirring occasionally until the milk thickens and flavors blend.
- Add sugar, cardamom, saffron, and garnish with nuts before serving warm.

Vedic Sip

Ingredients:

- 1 tsp crushed Ginger
- 2/3 tsp tea powder
- 1/4 tsp Cinnamon powder
- 1/4 tsp Curry leaves
- 1/8 tsp Fenugreek powder

Directions:

PROCEDURE FOR MAKING TEA BAGS

- Weigh all the ingredients accurately.
- Collect them in a one bowl & mix properly 3. Transfer it to empty dip tea bags.

PROCEDURE FOR PREPARATION OF TEA

- Take 60 ml of water and boil it.
- Transfer the water in a cup and dip the dip bag into it 3. Wait for 3-4 mins. And its ready.



Shivani Bharti (MSc, FSN)
PG Department, SNTD Women's University
Juhu, Mumbai

Moringo



**Kesar Gupta &
Satyama Kannaujiya (SYFSN)
Smt. P.N.Doshi Women's College, Ghatkopar**

Ingredients:

- Moringa leaves
- Mint Leaves
- Ginger
- Cinnamon
- Star anise
- Lemon Zest

Directions:

1. Boil water in a pan.
2. Add the moringo and wait for around 3 - 5 minutes
3. Strain the tea in the cup
4. The tea is ready

Benefits:

1. Antioxidant
2. Anti inflammatory
3. Improve digestion
4. Boost Immunity

B - GO Drink

Ingredients:

- | | |
|---------------|----------------|
| • Gond Katira | • Salt |
| • Beetroot | • Fennel seeds |
| • Lemon | • Cinnamon |
| • Ginger | • Nutmeg |

Directions:

- Soak the Gond Katira overnight.
- Peel the Beetroot and cut into cubes, then grind it with ginger.
- Pour the beetroot juice and Gond Katira in a glass.
- Crush the spices and add in the juice.
- Squeeze the lemon in a glass, stir properly.
- B - GO Drink is ready.

Benefits:

- Refreshing drink
- Good for weight loss
- Keep Hydrated
- Help in digestion



**Shabana Shaikh (SYFSN)
Smt. P.N.Doshi Women's College, Ghatkopar**

WORD SEARCH

Traditional Indian Functional Foods: Spices

Humera Elchiwala

TY BHSC Food Science and Nutrition

Anjuman-i-Islam Begum Jamila Haji Abdul Haq College
of Home Science

C E S J C H I L I P O W D E R C E E M
S U C O R I A N N D E R A X N M A N V Z
D L R C R M N A T X O J L L J Y O J L
E Z P R I M J N Q A C X Y L R E R A G
E B S N Y R L S A A X D A A I N F I E
S V E O K P E Y Z M K A W P E N F P M
Y R V U Q M O M E J O I A P N E A L T
P E O N J O M W R X D N R F P P S V U
P G L L L U X I D U C C A P X E O S N
O N C F M Y L Z U E T N C I A P O T Q
P I P E P P E R C O R N Y H N P V A S
X G U O F K Y Q K E E R G U N E F R L
G A R L I C P O W D E R J Z T R A A B
N O S B M U X J T F F R Z E R P M N V
S V G I V M O M H N W P P M L G T I I
T R A W D I V K A V J R E X B X R S B
E L M P X N T J Y C W G I W O F G E D
U C A U C L E Y E W E A L L S P I C E
R F B S D E E S D R A T S U M J N E I

ALLSPICE

CARAWAY

POPPY

CAYENNE

CINNAMON

CLOVES

SEEDS
PAPRIKA

PEPPER
CHILI POWDER

CORIANDER

CUMIN

SAFFRON

CURRY POWDER

GINGER

FENUGREEK SALT

GARLIC POWDER

MACE

NUTMEG

STAR ANISE

MUSTARD SEEDS

TURMERIC

VANILLA

PEPPERCO
RN

COLLABORATIVE ACTIVITIES

Nutrition Society of India, Mumbai Chapter
to commemorate
World Hypertension Day 2024
is organizing a webinar on

Hypertension & Diet: What You Need to Know

Decoding Hypertension: Understanding the basics
Magic of Diet in Managing Hypertension
Salt & Sodium Savvy: Know Your Food

Dr. Shekhar Ambardekar
Senior Cardiologist,
S. L. Raheja Hospital, Mumbai

Dr. Eileen Canday
Head of the Department of
Nutrition & Dietetics at Sir M. N.
Reliance Foundation Hospital and
Research Center, Mumbai

Dr. Neha Sonwalkar
Secretary NSI Mumbai Chapter
Director NutriConver & Academy
for Skills in Nutrition, Health &
Research, Mumbai

1st June 2024
2.00 to 4.00 pm

Registration Fees:
Rs. 99/- (Students)
Rs. 199/- (Professionals)

Scan the QR Code
To Register

Last Date of Registration - 31st May 2024, 6.00 pm
Certificates to be issued to all registered participants

Nutrition Society of India, Mumbai Chapter
in collaboration with
Anjuman-I-Islam's, Begum Jamila Haji Abdul Haq College of Home Science
(Affiliated to SNDT Women's University)
&
Academy for Skills in Nutrition, Health & Research
is organizing a national webinar on

Holistic Nutrition in Cancer Care: Integrative Approaches and Practical Solutions

Essential Knowledge on Cancer: A Beginner's Guide
Dr. Wasim Phulpurkar
Senior Consultant Radiation Oncology,
Dr. L. N. Hirapandani Hospital, Mumbai

Importance of Nutrition in Cancer Care
Dr. Anagha Palekar
Senior Dietitian,
W. T. N. Hospital Mumbai

Complementary and Alternative Nutrition Therapies for Cancer Management
Mr. Shivshankar Timmangyati
Chief Clinical Nutritionist,
Tata Memorial Hospital, Mumbai
Vice President (Nutrition),
IASPN India

Managing Common Nutritional Challenges in Cancer
Ms. Purabi Mahajan
Senior Clinical Dietitian,
Tata Memorial Hospital, Mumbai

Date: 10th July 2024, Wednesday
Time: 2 to 4.30 pm

Registration is free, but mandatory
Certificate would be issued to those who attend the entire webinar
To register login to: www.asnhr.com or scan the QR code

Vishwa Swasthyam **LSI** **AFSTI** **Future Varsity**

ICMR Dietary Guidelines 2024

Scientific, Dietetic and Industry Perspectives

June - 8 - 2024
2 PM to 4 PM

Dr. B. Sesikaran
Former Director ICMR,
Advisory Committee Member,
Dietary Guidelines

Dr. V. Sudershan Rao
Chairman, Scientific Panel on Food Additives at FSSAI,
Former Deputy Director ICMR,
Advisory Committee Member, Dietary Guidelines

Dr. Subhprada Nishtala
Director - Food Additive, Visit President, AFSTI Mumbai Chapter

Ms. Gauri Murthy
Wellness & Sports Nutrition Specialist,
Dietitian's Perspectives

TOPIC: Dietary Guidelines for Indians (An Overview)
TOPIC: Safety and Regulation of Food Additives
TOPIC: Dietary Guidelines for Women - Industry Perspectives

The session will be followed by a panel discussion moderated by
Prof. (Dr.) Subhprada Mandalika (PhD), Academic and Research Advisor, LSI.

Registration fees:
Nutrition Professionals: Rs. 200
Students: Rs. 100
(Students are required to attach their ID proof during registration)

Certificates will be issued for the participants attending the Seminar.

Scan the QR Code to Register

Last Day of Registration
June - 7 - 2024
3:00 PM

For any queries, contact us on
+91 86459 81111

Supported by **GANGWAL** **NUTRICHARGE**

Academic Partners:
MKES **B. K. Birla College, Kalyan**

Venue: University of Mumbai, Marathi Bhasha Bhavan, Kalina, Santacruz East, Mumbai - 400 098

One-Day RUSA sponsored National Seminar
On
**"Breastfeeding: Bridging the Gap
between Mother and Child"**
organized by
Seva Mandal Education Society's
Dr. Bhanuben Mahendra Nanavati College of Home Science (Empowered Autonomous
Status), Smt. Manjulaben Gunvantrai Shah Department of Post Graduate Studies
NAAC Re-accredited 'A+' Grade with CGPA of 3.69/4
"Enhancing Quality & Excellence in Select Autonomous Colleges"
RUSA
&
Nutrition Society of India, Mumbai Chapter

in collaboration with
Smt. Maniben M.P. Shah College of Arts & Commerce (Autonomous)
NAAC Re-accredited B++ Grade with CGPA of 2.88/4
College with Potential for Excellence (2016-2021)
&
SPRJ Kanyashala Trust's
Smt. P.N. Doshi Women's College
(Affiliated to SNDT Women's University Mumbai)
NAAC Re-accredited 'A' Grade with CGPA of 3.23/4

Date: August 3, 2024 (Saturday)
Time: 9:00 am to 4:30 pm (Hybrid Mode)
Venue: Shri Visanji Ravji Auditorium
Smt. Parmeshwaridevi Gordhandas Garodia Educational Complex
338, R.A. Kidwai Road, Matunga Mumbai-19

Knowledge Partners:
ASNHR **NutriShakti** **NUTRITION INSIGHTS**

icmr NIRRH **Nutrition Society of India, Mumbai Chapter** **Padmashali Yuvak Sangh, Naigaon**

International Day of Yoga June 2024

Jointly Organised by
Bone Health Clinic, ICMR-NIRRH,
Nutrition Society of India, Mumbai Chapter &
Padmashali Yuvak Sangh, Naigaon

Addressing Nutrition Needs FOR Beyond 50s: Why & How?

Invited expert :
Dr Veena Yardi,
Senior Nutritionist

Yoga for Harmony & Peace

Venue: Padmashali Yuvak Sangh Hall, Naigaon
19th June 2024, Wednesday, from 3.30 to 5.00 pm

**ANJUMAN-I-ISLAM'S BEGUM JAMILA HAJI ABDUL
HAQ COLLEGE OF HOME SCIENCE**
AFFILIATED TO S.N.D.T. WOMEN'S UNIVERSITY

Department Of Food Science and Nutrition and NSS Unit with IQAC Cell In
Collaboration With Nutrition Society Of India (NSI) Mumbai Chapter
Organizes

BREAST FEEDING WEEK - 2024

THEME- CLOSING THE GAP: BREASTFEEDING SUPPORT FOR ALL

Date: 1st August 2024 to 7th August 2024
Time: 1.30 pm to 4.00 pm
**Venue: 92, Dr DN Road, Badraddin Tyabji Marg,
Opposite CSMT,
Mumbai-400001**

Registration Open

SEVA MANDAL EDUCATION SOCIETY'S
DR. BHANUBEN MAHENDRA NANAVATI COLLEGE OF HOME SCIENCE
(EMPOWERED AUTONOMOUS STATUS), Smt. MANJULABEN GUNVANTRAI
SHAH DEPARTMENT OF POST GRADUATE STUDIES
NAAC RE-ACCREDITED 'A+' GRADE WITH CGPA 3.69/4 (3RD CYCLE) UGC
STATUS COLLEGE WITH POTENTIAL FOR EXCELLENCE (2024)


DEPARTMENT OF POST GRADUATE STUDIES
M.Sc. CLINICAL NUTRITION AND DIETETICS

In collaboration with
NUTRITION SOCIETY OF INDIA, MUMBAI CHAPTER

**HARMONY AND HEALTH: CELEBRATING
WORLD YOGA DAY**

FRIDAY, 21 JUNE 2024

Common Room, 2nd Floor, Br. BMN
College of Home Science



LSI FUTURE LEADERS Rotaract

**PAN INDIA
E-Quiz
COMPETITION 2024**
To celebrate
World Food Day 2024

THEME
Right Foods For Better Life & Better Future

FOOD FOR THOUGHT: THE NUTRITION CHALLENGE

Winners would get amazon gift vouchers worth

1st Prize 4000/-	2nd Prize 3000/-	3rd Prize 2000/-
----------------------------	----------------------------	----------------------------

CALLING ALL QUIZ ENTHUSIASTS!

Last date of registration
October 2024
04
12:00 Noon

Registration is free but Mandatory!



DEPARTMENT OF CLINICAL NUTRITION,
MGM SCHOOL OF BIOMEDICAL SCIENCES,
NAVI MUMBAI

celebrates

World Breastfeeding Week 2024

In collaboration with
Dept. of Community Medicine, MGM Medical College, Vashi
&
Nutrition Society of India, Mumbai Chapter

By organizing

- Community based Research
- Hands-on Training:
 - Breastfeeding techniques by Ms. Shilpi Malhotra (CAPP Certified Lactation Educator)
- Poshan Gyan:
 - Demonstration of Nutritional recipes for pregnant and lactating women
 - Group Discussion

DATE: 8th August 2024

TIMING: 11:00 am onwards

LOCATION: Rural Health Training Centre, Koprol



One day RUSA Sponsored International Conference on

**NUTRITION COMMUNICATION
AND EXTENSION:
INTEGRATING SCIENCE,
POLICY, AND PRACTICE FOR
HEALTHIER COMMUNITIES**

To celebrate
Rashtriya Poshan Maah/ National Nutrition Month 2024

Organized by:
Seva Mandal Education Society's
Dr. Bhanuben Mahendra Nanavati College of Home Science
(Empowered Autonomous Status)
Smt. Manjulaben Gunvantrai Shah Department of Post
Graduate Studies
NAAC Re-accredited 'A+' Grade with CGPA of 3.69/4
"Enhancing Quality & Excellence in Select Autonomous College" by
Rastriya Uchchatar Shiksha Abhiyan (RUSA)

&
Nutrition Society of India, Mumbai Chapter

In Collaboration with
Postgraduate Departments of Home Science
SNDT Women's University, Juhu Campus
&
Anjuman-I-Islam's Begum Jamila Haji Abdul Haq College of
Home Science (affiliated to SNDT Women's University)

Date: September 28, 2024 (Saturday)
Time: 9:00 am to 5:00 pm (Hybrid Mode)

Venue: Shri Visanji Ravji Auditorium, Smt. Parmeshwaridevi
Gordhandas Garodia Educational Complex, 338, R.A. Kidwai Road,
Matunga Mumbai- 19

KNOWLEDGE PARTNERS:

ASNHR NUTRITION INSIGHTS AS NutriShala

Nirmala Nihetan's Institute
College of Home Science Nirmala Nihetan
NAAC Accredited A+ Grade
Affiliated to University of Mumbai

Department of Foods, Nutrition and Dietetics
in collaboration with
Nutrition Society of India (NSI)- Mumbai Chapter
organizes

WORLD BREAST FEEDING WEEK
1st August to 7th August 2024

Date: 7th August 2024
Time: 10:30am
Venue: College of Home Science
Nirmala Nihetan

❖ BREAST FEEDING AWARENESS SESSION (STUDENT LED ACTIVITY)
❖ QUIZ ON LACTATION AND COMPLEMENTARY FEEDING
❖ SLOGAN COMPETITION

STREET PLAY COMPETITION 2024
Intercollegiate Event

National Nutrition Month 2024

Theme:
Metabolic Awareness: The First Step to Better Health

Express, Educate, Empower.
Where Creativity Meets Nutrition Awareness

Audition Date: 19th September 2024
CWC Campus, Malad (W)

Join us in spreading awareness about nutrition through the powerful art of street play!

Promoted by **FUTURE VARSITY**

Vishwa Swasthyam 2025

Organized by **LSI**

INTERNATIONAL CONFERENCE ON
Integrative Strategies for Metabolic Health
PROTECT THE PRESENT, SAFEGUARD THE FUTURE

Pre-Conference Workshop	Conference	Post-Conference Workshop
9th January, 2025 Thursday	10th & 11th January, 2025 Friday & Saturday	12th January, 2025 Sunday
6 th floor, Future Varsity Education Group Campus, Marve Road, Malad West, Mumbai 400064	Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute, Andheri (West), Mumbai, Maharashtra	6 th floor, Future Varsity Education Group Campus, Marve Road, Malad West, Mumbai 400064

Academic Partners

MKES KARNATAKA COLLEGE
Bombay College of Pharmacy - Autonomous
Approved by AICTE, PCI and Affiliated to University of Mumbai
B. K. Birla College, Kalyan (Empowered Autonomous Status)
Affiliated to University of Mumbai

Knowledge Partners

Kokilaben Dhirubhai Ambani Hospital & Medical Research Institute
Every Life Matters
NSI MUMBAI CHAPTER
NUTRITION & DIABETES INDIA A CORE GROUP OF IAPEN INDIA
ASNFS Association for Science in Nutrition & Food Science
ASNH Association for Science in Nutrition & Health
DENMA

40th Anniversary

Seva Mandal Education Society's
Dr. Bhanuben Mahendra Nanavati College of Home Science
(Empowered Autonomous Status)
Smt. Manjulaben Gunvantrai Shah Department of Post Graduate Studies
Masters in Clinical Nutrition & Dietetics
NAAC Re-accredited 'A+' Grade with CGPA of 3.69 /4
Selected Under "Enhancing Quality & Excellence in Select Autonomous College"
by Rastriya Uchchatar Shiksha Abhiyan (RUSA)

In collaboration with

Nutrition Society of India, Mumbai Chapter
and
Smt. Maniben M.P. Shah College of Arts & Commerce (Autonomous)
Department of Food and Nutrition
NAAC Reaccredited B++ Cycle 3
UGC Honour: College with Potential for Excellence (2016-2021)
Best College Award (2018): SNDT Women's University

organizes
RUSA Sponsored Symposia
on

"Food as Medicine: A Holistic Approach"

Date:
December 14, 2024 (Saturday)
Time:
9:00 am onwards
Venue:
AV Room, 3rd floor
Smt. Maniben M.P. Shah College of Arts & Commerce (Autonomous)

~ Zeenat Khan , Muskan Khan
& Noyab Shaikh
LIFENESS SCIENCE INSTITUTE (LSI)



"In every spice, grain, and
herb lies the wisdom of India's
ancient health traditions."

