



**PURNABRAHMA**

# **PREVENT MALNUTRITION**

**Part -1**



**JANUARY - MARCH 2025**  
**YEAR 5 / VOLUME -1**

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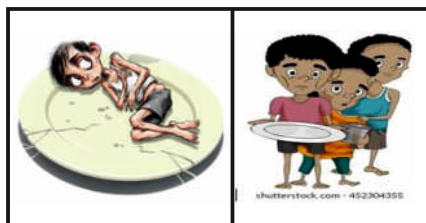
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And Coordinator CASMB



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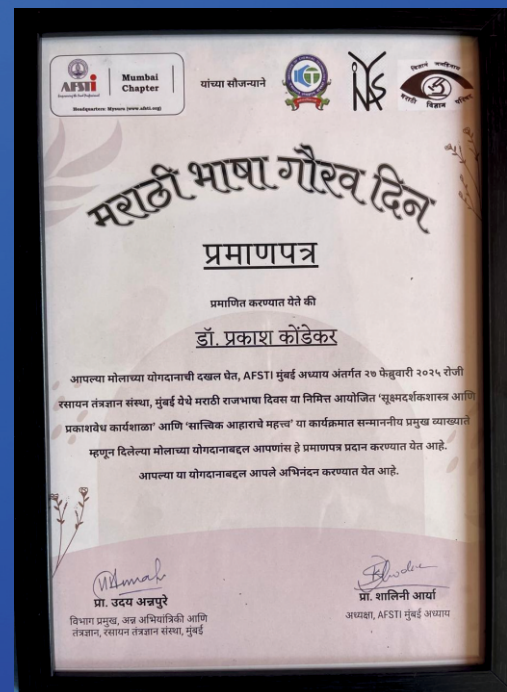
**Kulkarni Laboratory Customized training developed for Dairy Industry - First program completed in Warna Dairy**



**Envirocare Suresh Amritkar Gold Medal Award at University of Mumbai.**  
This award symbolizes the importance of pursuing sustainability and environmental stewardship in our society.



**Foodtech Pathshala has been selected in top 100 Startups in the Maharashtra Startp Week**



**Dr Prakash Kondeker of CASMB was felicitated for his expert talk in a workshop organised on the occasion of Marathi Bhasha Gaurav Diwas in Mumbai**





# CASMB ACTIVITIES



CASMB instituted a "Startup Award" along with The Biotech Research Society, India (BRSI).



Dr Prabodh Halde Chairman CASMB met Hon Secretary MOFPI Shri Subroto Gupta IAS as curtesy meeting .



CASMB and MSSIDC signed an MOU for conducting Capacity Building programmes



CASMB office bearers, Chairman - FT Prabodh S. Halde ( PhD ) , President - Nilesh Lele and Secretary - Dr Umesh Kamble (Phd) had a fruitful discussion with Dr. Pramod Shinde Jt. Secretary, Maharashtra Institution for Transformation (MITRA), Govt of Maharashtra.



CASMB has signed MoUs with CSIR-NIIST and CSIR-CIMAP to drive innovation and growth in the food and agro-processing sectors.



On 4th February, CASMB successfully hosted GeM & IPR Training at the International Training Center, Food Safety & Applied Nutrition, Andheri East

### Dr. Prabodh Halde

Chairman  
Chamber for Advancement of  
Small and Medium Businesses,  
CASMB



Congratulations to the editorial team of Purnabrahma for selecting 'Prevention of Malnutrition' as the theme for this issue. The health and well-being of our people are essential for a strong nation as holistic nutrition is the key.

Historically, Indian rulers prioritized food security and public welfare:

- Chhatrapati Shivaji Maharaj ensured proper storage and distribution of grains during famines
- Chanakya emphasized food security and support for farmers in the Arthashastra
- Emperor Ashoka promoted public welfare, including food supply
- Krishna Deva Raya improved agricultural practices for food sufficiency

**However, malnutrition in India was rooted in British colonial rule, which disrupted our self-sufficient economy. Policies prioritizing cash crops, exploitative land systems, and neglect during famines caused poverty and food scarcity, as seen in the Bengal Famine of 1943.**

As the most populous country, India faces resource inequality. Malnutrition is not just a nutritional issue but a social one. Equal resource allocation, employment generation, and fostering self-reliance through SMEs and startups are vital.

Economic empowerment ensures food security and reduces malnutrition.

Traditional and local foods offer sustainable nutritional solutions. Natural foods should be the primary source, with supplements used when necessary.

The Government of India's initiatives like Anganwadi Services, POSHAN Abhiyaan, and the Midday Meal Scheme have reduced malnutrition, as reflected in the NFHS-5 survey.

To further prevent malnutrition, we must:

- Promote dietary diversity with local foods
- Support early childhood nutrition through breastfeeding and supplementary feeding
- Enhance community education on nutrition and hygiene
- Focus on poverty alleviation, women's empowerment, and quality healthcare
- Monitoring, collaboration across sectors, and community engagement are essential. SMEs and startups can drive change by creating jobs and ensuring equitable resource distribution

As the Chairman of CASMB, I am proud that Purnabrahma is addressing this vital issue. Together, let's build a healthier India through holistic nutrition and collective effort.

सर्वे भवन्तु सुखिनः, सर्वे सन्तु निरामयाः।  
सर्वे भद्राणि पश्यन्तु, मा कश्चिद् दुःखभाग् भवेत्॥"

**Dr. Prabodh Halde**

**Chairman, Chamber for Advancement of Small &  
Medium Businesses (CASMB)**





**CHAMBER FOR ADVANCEMENT  
OF SMALL & MEDIUM BUSINESSES**

**Nilesh Lele**

**President,  
Chamber for Advancement  
of Small and Medium  
Business (CASMB)**



**M**alnutrition is a critical public health issue that affects individuals across all age groups, particularly children and pregnant women. It not only weakens immunity and cognitive development but also hampers economic growth by reducing workforce productivity. To combat malnutrition effectively, we need a comprehensive approach that combines awareness, access to nutritious food, and sustainable dietary practices.

One of the most effective strategies is food fortification—enhancing staple foods with essential micronutrients such as iron, vitamin A, and folic acid. Governments and the food industry must collaborate to ensure that fortified foods reach every section of society, particularly marginalized communities.

Additionally, promoting balanced diets that include locally available, nutrient-rich foods can help address both macro and micronutrient deficiencies.

The role of education cannot be overstated in preventing malnutrition. Awareness programs that teach individuals about proper nutrition, hygiene, and meal planning can go a long way in improving dietary habits. Moreover, empowering women through nutrition education ensures healthier families and future generations.

It is time for a collective effort from policymakers, healthcare professionals, food industries, and communities to prioritize nutrition security. By investing in research, food innovation, and policies that support accessible and affordable nutrition, we can work towards eradicating malnutrition and building a healthier society.

**Mr. Nilesh Lele**

President,  
**Chamber for the Advancement of Small and  
Medium Business (CASMB)**



# PURNABRAHMA

**Dr. Ritika Joshi**

**Editor  
Purnabrahma**



In 2024, India's malnutrition statistics reveal a pressing public health crisis, as highlighted by the Global Hunger Index (GHI) and other national surveys. India ranks 105<sup>th</sup> out of 127 countries in the 2024 GHI, placing it in the 'serious' category with a score of 27.3. Approximately 200 million people in India are malnourished, constituting about 14% of the total population. The rate of child stunting is at 35.5% while the prevalence of child wasting is reported at 19.7% indicating acute malnutrition. About 32.1% of children under five are classified as underweight. The under-five mortality rate stands at 26 per 1,000 live births, reflecting ongoing challenges in healthcare access and nutrition. The prevalence of undernourishment in India is reported at 13.7%, indicating food insecurity among a significant portion of the population. Among women aged 15-49, malnutrition rates reach 18.7%, with alarming anaemia prevalence rates: 57% in women, 25% in men, and even higher rates among adolescents and pregnant women.

Our country has implemented a variety of initiatives (POSHAN Abhiyaan, Integrated Child Development Services, Pradhan Mantri Matru Vandana Yojana, Mid-Day Meal Scheme, National Health Mission, Mission Poshan etc.) to combat malnutrition, reflecting a multi-faceted approach to address this critical public health issue. Despite these initiatives, challenges remain effectively in reaching all segments of the population.

The food industries can play a vital role in achieving significant improvements in India's nutritional landscape

and so through the current issue we urge all to take up this critical problem head-on in the following ways:

(i) By adding essential vitamins and minerals (e.g.: iron in flour, vitamin A in oil) to staple foods, enhancing protein content in foods while formulating their composition (ii) By innovating new healthy, nutrient-rich and functional food products (e.g.: energy-dense bars, fortified snacks, nutrient enhanced beverages, probiotic yogurts, omega-3 enriched eggs, antioxidant-rich juices, etc.) that can be afforded by all (iii) By designing eco-friendly packaging to reduce food waste and preserve nutrients (iv) By adopting and promoting sustainable agricultural practices, reducing carbon footprint, encouraging farmers to grow diverse and nutrient rich crops (v) By promoting farming practices that enhance soil health, biodiversity, and ecosystem services (vi) By collaborating with governments, NGOs to develop and implement effective malnutrition reduction strategies (vii) By joining forces with various other food industries and academia to share best practices, research and resources (viii) By conducting research on nutrient deficiencies, dietary patterns, and the impact of food on health (ix) By developing new products and reformulating the existing ones to address specific nutritional needs (x) By leveraging technologies like precision agriculture, vertical farming, and alternative proteins to enhance nutritional content and sustainability.

So, let's pledge to direct our efforts to enhance healthcare infrastructure for achieving significant improvements in India's nutritional landscape and combat this "silent epidemic" of malnutrition. By prioritizing nutrition, education and social protection, we can build a healthier, more equitable future for all!

**Dr. Ritika Joshi**

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# PURNABRAHMA

**Nidhi Godbole  
Deshpande**

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Senior Food Consultant  
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## **F**ood Security and Nutrition: Ensuring No One Goes Hungry

Malnutrition refers to deficiencies, excesses or imbalance in a person's intake of energy or nutrition. In a world where food production is sufficient to feed the global population, millions still suffer from hunger and nutrient deficiencies. The root cause often lies in food insecurity, which stems from limited availability, lack of accessibility, and high costs of nutritious food.

Food security means that every individual has reliable access to safe, nutritious, and sufficient food to meet their dietary needs for a healthy life. However, food security has seen a dramatic decline in many developing nations. Several factors threaten this security, including climate change, economic disparities, political instability, and inefficient food distribution systems. Without intervention, these challenges

can lead to malnutrition, stunted growth in children, weakened immune systems, and increased vulnerability to diseases.

To combat malnutrition effectively, we must focus on sustainable agricultural practices, equitable food distribution, and policies that make healthy food more affordable. Governments, NGOs, and communities must work together to create food programs, support local farmers, and reduce food waste. Education on proper nutrition and dietary diversity is equally important, ensuring that people not only have access to food but also make informed choices about what they consume.

As we navigate a world facing economic and environmental uncertainties, prioritizing food security is more critical than ever. No one should have to go to bed hungry, and no child should suffer due to a lack of proper nutrition. By working collectively, we can create a future where food security is a reality for all, laying the foundation for a healthier and stronger society.

**Nidhi Godbole Deshpande**

Sub-Editor CASMB  
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# PURNABRAHMA

## Dr. Umesh Kamble

Secretary  
Chamber for Advancement of  
Small & Medium Businesses  
(CASMB)



### Prioritizing Nutrition Over Indulgence: A Call for Healthier Food Manufacturing

Malnutrition, in all its forms—undernutrition, micronutrient deficiencies, and obesity—continues to be a major public health concern globally. While efforts have been made to address this issue, the increasing availability and consumption of ultra-processed, unhealthy foods pose a significant challenge. It is time to shift our focus towards **manufacturing healthier and more nutritious food** rather than producing merely **tasty, fancy, and calorie-dense junk food**.

The food industry plays a **crucial role** in shaping dietary habits and public health outcomes. Encouraging the large-scale production of **fortified foods, high-protein staples, whole grains, and plant-based nutritious alternatives** can help combat malnutrition effectively. Additionally, reducing excessive sugar, salt, and trans-fat content in processed foods can contribute significantly to preventing lifestyle diseases linked to poor nutrition.

In India, initiatives such as **food fortification programs, millet promotion under the National Year of Millets, and regulatory policies on food labeling** are important steps toward healthier food production. However, we need **greater industry responsibility**, consumer awareness, and policy-driven incentives to encourage the manufacturing and consumption of nutrient-dense foods.

The global movement towards "**food as medicine**" must be embraced, where every meal serves not just to satisfy taste buds but to nourish the body. By fostering innovation in **healthier food alternatives, sustainable agriculture, and responsible marketing**, we can ensure a future where **nutrition takes precedence over convenience and commercial appeal**.

Let us pledge to promote a **health-first food culture**, where the emphasis is on **quality, nourishment, and well-being** rather than superficial taste and visual appeal. The future of public health depends on the choices we make today.

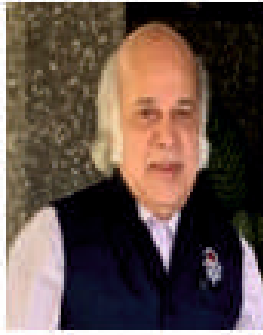
Warm Regards,

Dr. Umesh Kamble

Secretary  
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## Dr. Prakash Kondekar

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of Naturopathy, Mumbai.  
Fellow of Royal Society of  
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## Good nutrition is vital at every stage of life

As one ages, staying well-nourished is more important. It can be protein-calorie malnutrition (PCM) otherwise.

Malnutrition burdens healthcare systems and jeopardizes patient outcomes, yet it often goes unnoticed. The environment, policies and community can influence malnutrition, making social determinants of health (SDOH) a key factor when evaluating it. The Global Malnutrition Composite Score (GMCS), the first nutrition-focused electronic clinical quality measure places increased value on the importance of malnutrition care for acute care patients and has been identified as a key measure to improve rural health, SDOH and food insecurity. By identifying appropriate interventions and care strategies patients can be recovered from starvation/semi-starvation, chronic and acute PCM health conditions.

Malnutrition can hurt muscle and bones. Our body naturally loses muscle and bone as one ages, however, malnutrition can accelerate these losses and impact one's independence and ability to be active. Weak muscles and bones can make it harder to do everyday tasks like walking, dressing and bathing. Regular physical activity and a diet high in protein, calcium and vitamin D are critical to help one maintain and rebuild muscle and bone.

Muscles and bones are needed to help keep one upright. If they are weak, one may strain one's neck, back and shoulder muscles, causing one to feel pain. Poor muscle strength may make it more difficult to perform favourite activities. Bone and joint problems are major risk factors leading to cause of death and injury among older adults.

When our body lacks nutrition, our white blood cell count can decrease, making it harder for our body to heal and fight illnesses. Our body's nutrition influences our recovery, since wounds need energy, protein, vitamins and minerals to heal.

If one is malnourished, it is more difficult to tolerate chemotherapy. A poor immune system can increase our risk for illnesses and infections. Not having enough protein and other nutrients can harm our organs. Vitamin and mineral deficiencies can accelerate vision loss caused by

glaucoma, cataracts and/or macular degeneration. Nutrient deficiencies may speed up the rate at which our brain loses neurons which can impair our speech, coordination and memory. A deficiency of fluids and electrolytes can cause our kidneys to overwork and affect their ability to function. This can lead to dehydration, joint pain and heart issues.

### A few facts about malnutrition:

- Malnutrition affects all age groups
- Malnutrition can come from several factors, including reduced appetite, poor dental health, chronic conditions, depression, living alone and limited income
- One can't always prevent or treat malnutrition by eating more nutritious foods
- Malnutrition has many warning signs, including muscle weakness, fatigue, depression, increased illness or infection, unplanned weight loss and decreased appetite

Nutrition counselling provides personalized guidance to individuals who are at nutritional risk because of their health or nutritional history, dietary intake, chronic illness or medication use.

Most common deficiencies are to be taken care of is iron deficiency.

One may suffer from anemia if one experiences the following symptoms. 1. Pale skin 2. Extreme fatigue 3. Brittle nails (also called vitamin deficiency nails) 4. Chest pain and shortness of breath (accompanied by fast heartbeat) 5. Cold hands and feet 6. Tongue inflammation 7. Unusual cravings for non-nutritive substances like ice or dirt 8. Headache and dizziness When our body doesn't have enough iron to produce hemoglobin, one can develop anemia.

### 2. Iodine Deficiency

One may have iodine deficiency if one experiences the symptoms, like: 1. Goiter, characterizing an enlarged thyroid gland 2. Fatigue 3. Constipation 4. Puffy face 5. Muscle weakness 6. Dry skin 7. Muscle aches and tenderness 8. Thinning hair 9. Depression 10. Impaired memory 11. Weight gain 12. Increased sensitivity to cold 13. Irregular menstrual periods 14. Elevated blood cholesterol levels Iodine deficiency happens when one doesn't consume enough iodine through diet.

### 3. Vitamin A Deficiency

One may have vitamin A deficiency if one experience symptoms like: 1. Dry and scaly skin 2. Dry eyes 3. A hazy cornea 4. Inflamed eyes 5. Night blindness. Lack of adequate dietary intake is the biggest cause of vitamin A deficiency. This deficiency is prevalent in populations where rice is the main food.

So, all in all, one has to take care of and consider all the factors pointed above, keeping one away from malnutrition in any form. . ❑



# Approach to Combat Malnutrition in India

**Chef Sumit Ghadiyali**

**Brand Consultant and Executive Chef, Pune**



**M**alnutrition remains a significant challenge in India, affecting millions of people, particularly children and women. While there have been efforts to address the issue, the prevalence is still concerning. According to the National Family Health Survey (NFHS)-5 (2019-21), the prevalence of malnutrition among children under 5 years of age is as follows:

Stunting (low height-for-age): 35.5%; Wasting (low weight-for-height): 19.3%; Underweight (children low weight-for-age): 32.1% Additionally, 18.7% of women aged 15-49 years are underweight.

It's important to note that these are national averages, and the prevalence varies significantly across states and regions. Some states, particularly in the eastern and central parts of India, have higher rates of malnutrition compared to others.

Preventing malnutrition in India requires a multi-faceted approach that addresses the underlying social, economic, and cultural factors. Here are some key strategies:

## Government Initiatives:

**Integrated Child Development Services (ICDS):** This flagship program provides comprehensive care to children under 6 years of age, including supplementary nutrition, health check-ups, and immunization.

**Mid-Day Meal Scheme:** Provides free meals to school children, ensuring they receive adequate nutrition and encouraging school attendance.

**Pradhan Mantri Matru Vandana Yojana:** Provides cash benefits to pregnant women and lactating mothers, promoting better maternal and child health.

**POSHAN Abhiyaan:** A national time-bound mission to improve nutritional status of children, pregnant women,

and lactating mothers.

## Community-Based Interventions:

**Awareness and Education:** Promote awareness about the importance of nutrition, healthy diets, and hygiene practices through community campaigns and educational programs.

**Food Fortification:** Increase the nutritional content of staple foods like rice, wheat, and salt with essential vitamins and minerals.

**Community Gardens:** Encourage community-based gardening initiatives to improve access to fresh, nutritious food.

**Support for Smallholder Farmers:** Promote sustainable agriculture practices and provide support to smallholder farmers to increase food production and diversity.

## Individual Actions:

**Breastfeeding:** Exclusive breastfeeding for the first six months of life is crucial for infant health and development.

**Balanced Diet:** Ensure a balanced diet rich in fruits, vegetables, whole grains, and protein sources.

**Regular Health Check-ups:** Regular check-ups for children and pregnant women can help identify and address nutritional deficiencies early on.

**Hygiene Practices:** Maintain good hygiene to prevent infections and promote overall health.

## Additional Considerations:

**Addressing Poverty and Inequality:** Poverty is a major driver of malnutrition. Addressing income inequality and poverty reduction is essential for improving nutritional outcomes.

**Climate Change Mitigation:** Climate change can impact food production and availability. Sustainable agriculture practices and climate-resilient farming can help mitigate these effects.

**Collaboration and Partnerships:** A collaborative approach involving government, NGOs, private sector, and communities is crucial for effective implementation of interventions.

## Conclusion:

By combining these strategies and addressing the root causes of malnutrition, India can make significant progress in improving the nutritional status of its population and building a healthier future. ❑

# Nutrition & Protein Bars: A way of preventing malnutrition

Alka Duseja

CEO,  
GrianyDay Nutraceuticals  
Pvt. Ltd.,  
Pune - a Contract Manufacturer  
for Nutritional and Protein Bars

In today's fast-paced world, maintaining a balanced diet can feel like an uphill battle. With the constant hustle and bustle of daily life, many people are at risk of malnutrition without even realizing it. But don't fret—there's a delicious solution that fits seamlessly into your busy schedule: nutrition bars! Packed with essential nutrients from millets, seeds, nuts, and dates, these protein-packed snacks serve as both fuel and nourishment for your body.

Whether you're rushing to work or heading out for an adventure, nutrition bars provide the perfect on-the-go snacking option to keep you healthy and energized.

Let's take a deeper dive into how these superfood-infused treats can help combat malnutrition effectively.

## Role of Nutrition in Combating Malnutrition

When individuals lack essential nutrients, they become more susceptible to various health issues. Malnutrition can manifest not just as undernourishment but also through an imbalance of vitamins and minerals.

A diet rich in essential macronutrients (carbohydrates, proteins, and fats) and micronutrients (vitamins and minerals) ensures proper growth, immunity, and overall well-being. However, due to busy lifestyles, socioeconomic barriers, and limited awareness, many people struggle to meet their nutritional requirements. This is where convenient, nutrient-packed alternatives like nutrition and protein bars come into play.

Incorporating diverse food sources ensures that the body receives a wide array of nutrients. Nutrient-dense foods like millets, seeds, nuts, and dates provide vital energy while promoting healthier eating habits.

## The Superfoods Behind Nutrition Bars

Nutrition bars have gained popularity for good reason. They pack a punch with superfoods that are both nourishing and delicious.

### 1. Millets

Millets, including sorghum millet, finger millet, and foxtail millet, are ancient grains gaining renewed attention for their nutritional value. They are:

- **Rich in Nutrients:** Millets are high in fibre, iron, calcium, magnesium, and essential amino acids.
- **Gluten-Free:** Suitable for individuals with gluten intolerance or celiac disease.
- **Sustainable:** Millets are drought-resistant and require minimal resources to grow, making them an eco-friendly choice.

Incorporating millets into nutrition bars ensures a steady release of energy, supports digestive health, and combats deficiencies in minerals like iron and calcium.

### 2. Seeds

Seeds like sesame, chia, flax, sunflower, and pumpkin are tiny powerhouses of nutrition. They provide:

- **Omega-3 Fatty Acids:** Essential for brain development and reducing inflammation.
- **Protein:** Contributing to muscle repair and growth.
- **Vitamins and Minerals:** Zinc, magnesium, and vitamin E boost immunity and overall health.

Adding seeds to bars enhances their nutrient density, making them a complete snack.

### 3. Nuts

Nuts such as almonds, walnuts, cashews, and pistachios are rich in healthy fats, protein, and antioxidants. Their benefits include:

- **Energy Boost:** Ideal for combating fatigue.
- **Heart Health:** The unsaturated fats in nuts improve cardiovascular health.
- **Nutrient-Rich:** Packed with vitamin E, magnesium, and fibre.

By including nuts in nutrition bars, you get a snack that not only satisfies hunger but also delivers critical nutrients.

## 4. Dates

Dates are natural sweeteners with a plethora of health benefits. They are:

- **Rich in Fiber:** Supporting digestive health.
- **High in Natural Sugars:** Providing quick energy without causing spikes in blood sugar levels.
- **Loaded with Micronutrients:** Potassium, magnesium, and vitamin B6.

Dates serve as a **binding agent in bars, eliminating the need for artificial sweeteners while boosting their nutrient profile.**

Together, these ingredients create a wholesome blend to combat malnutrition effectively.

## Benefits of Nutrition Bars in Preventing Malnutrition

1. **Portability and Convenience:** Nutrition bars are compact and easy to carry.
2. **Balanced Nutrition:** A well-formulated nutrition bar ensures -energy sustenance, muscle repair, immune support and much more
3. **Addressing Micronutrient Deficiencies:** Nutrition bars enriched with ingredients that can combat specific deficiencies such as: iron deficiency resulting in anaemia, calcium deficiency and vit E deficiency.

## Tailoring Nutrition Bars for Different Demographics

Nutrition bars are available for different demographics,

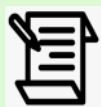
including:

1. **Adults:** A large segment of the market, including working professionals and people with busy schedules.
2. **Athletes and fitness enthusiasts:** Use nutrition bars to fuel workouts and aid in muscle recovery.
3. **Children and teens:** Nutrition bars that are tasty and provide essential nutrients for growing bodies.
4. **Elderly and health-conscious consumers:** Look for nutrition bars that align with their specific health needs, such as high fibre or reduced sugar content.
5. **Underprivileged Communities:** Nutrition bars can be a cost-effective solution for combating malnutrition in underprivileged areas.

## Conclusion

Nutrition bars made with millets, seeds, nuts, and dates present a viable and innovative solution to combating malnutrition. Their nutrient-dense composition, convenience, and sustainability make them an ideal choice for diverse demographics, from children to the elderly.

By prioritizing these wholesome snacks, individuals and communities can take significant steps toward better health and nutrition. With collaborative efforts between governments, NGOs, and food manufacturers, these bars can become a cornerstone in the fight against malnutrition, paving the way for a healthier and more nourished world. □



## DECLARATION



- The contents of this issue is referred and compiled from various sources and Purnabrahma doesn't claim it's authenticity.
- The contents given in the article are the views of the respective authors.



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# A Plate Full of Culture: How Culinary Traditions Can Fight Malnutrition

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**F**ood isn't just about filling our stomachs; it's a celebration of culture, history, and tradition. In India, our diverse culinary heritage holds lessons that go beyond taste—it offers real solutions to one of today's most critical problems: malnutrition. By combining the wisdom of our ancestors with modern nutritional science, we can create practical ways to nourish communities and fight malnutrition in all its forms.

## More Than Meets the Eye: Understanding Malnutrition

Malnutrition isn't just about not having enough to eat. It shows up in two ways: undernutrition, where people don't get enough calories, and hidden hunger, where essential vitamins and minerals are missing from the diet. For instance, more than 68% of young children and 66% of women in India are anemic, largely due to iron deficiency.

Yet, our traditional diets offer solutions to these challenges. Fermented foods like idli and dhokla improve nutrient absorption, while ingredients like tamarind and amla (Indian gooseberry) are packed with vitamin C. These time-tested practices show that our ancestors understood nutrition deeply, even without modern science.

## The Comeback of Millets: A Superfood for All

Once a staple in Indian households, millets are making a big comeback as “climate-smart” superfoods. Varieties like ragi (finger millet), jowar (sorghum), and bajra (pearl millet) are packed with iron, calcium, and fiber. These grains are also incredibly resilient, thriving

in dry conditions where other crops struggle.

Take ragi, for example. Traditional dishes like ragiladdoos or porridges have been nourishing children and new mothers for generations. Today, we can reintroduce millets into our diets through modern recipes like millet pizzas or upma, making them appealing for younger generations. Including millets in school meal programs could significantly reduce malnutrition rates while supporting sustainable farming.

## The Magic of Fermentation: Boosting Nutrition Naturally

Fermentation isn't just about adding flavor—it's a nutritional game-changer. Across India, dishes like idlis, dosas, and dhoklas, along with probiotic-rich drinks like buttermilk and kanji, demonstrate how fermentation enhances nutrient absorption. These foods also support gut health and immunity, two critical factors in fighting malnutrition.

Bringing fermented foods back to our daily meals could address many micronutrient deficiencies. Schools, community kitchens, and families can all benefit from including these simple, traditional recipes in their menus.

## Hidden Gems: Local Ingredients with Big Benefits

Every region in India has its own set of nutritional powerhouses, often hiding in plain sight. Some of these gems include:

*Drumstick Leaves (Moringa):* A key ingredient in South Indian dishes, drumstick leaves are rich in iron, calcium, and vitamins A and C. They're perfect for fighting anemia and boosting immunity.

*Jackfruit Seeds:* Often added to curries or stir-fries, these seeds are packed with protein, iron, and potassium.

*Amaranth Leaves:* Commonly used in Maharashtra and Gujarat, these vibrant greens are a treasure trove of iron, calcium, and antioxidants.

Reintroducing such ingredients into modern diets can make a huge difference in tackling malnutrition while preserving our culinary roots.

## Learning from Tradition: Food as a Community Effort

Indian food culture has always been communal, with meals shared and recipes handed down through

generations. This spirit can inspire today's solutions to malnutrition:

*Community Kitchens:* Drawing from the tradition of *langars* in Sikh temples, modern community kitchens can serve nutritious meals to those in need.

*Nutrition Workshops:* Teaching families how to prepare traditional dishes with local ingredients can help them create balanced, affordable meals.

*School Meals:* Dishes like *khichdi*, *pongalln*, or *dalia* are not only delicious but also packed with nutrients, making them ideal for mid-day meal programs.

**Women as Nutrition Champions**

In most Indian households, women play a central role in deciding what the family eats. Educating and empowering them about the nutritional value of traditional recipes can have a ripple effect on family health. Self-help groups and women's cooperatives can further promote local ingredients and cooking techniques, ensuring that good nutrition becomes a community-driven effort.

**Bridging the Past and Present**

To make traditional foods relevant in today's fast-paced

world, we need to get creative. Imagine millet energy bars, moringa smoothies, or jackfruit-seed hummus. These modern twists on age-old recipes can attract younger audiences while preserving their nutritional essence. Chefs, nutritionists, and food entrepreneurs can work together to bring these innovations to life.

**Protecting Our Heritage for a Healthier Future**

As global food habits infiltrate our kitchens, we must take steps to preserve India's culinary heritage. Documenting traditional recipes, hosting workshops, and including these foods in everyday meals are all critical steps. By doing so, we're not just saving traditions but also creating a blueprint for a malnutrition-free future.

**In Conclusion**

A plate full of culture is a plate full of nutrition. India's culinary traditions are more than just recipes; they're a treasure trove of wisdom that can help us fight malnutrition. By combining the best of the past with the innovations of today, we can ensure that every meal is a step toward better health for all. In the end, the answers to malnutrition might just be waiting in our grandmothers' kitchens, where food isn't just eaten but celebrated. ▢



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# Prevention of Malnutrition

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## Abstract

Malnutrition remains a significant global health challenge, affecting individuals of all age groups, particularly children and pregnant women. Prevention strategies focus on ensuring adequate nutrition through balanced diets, food security, health education, and early intervention programs. Key approaches include promoting breastfeeding, fortifying foods with essential micronutrients, and encouraging diversified diets rich in proteins, vitamins, and minerals. Addressing socioeconomic factors such as poverty, inadequate healthcare, and poor sanitation is crucial in reducing malnutrition rates. Government policies and community-based initiatives play a pivotal role in improving access to nutritious food and raising awareness about healthy dietary practices. Nutritional supplementation programs, especially in low-income regions, help combat deficiencies like stunting, wasting, and underweight conditions. Additionally, integrating nutrition-sensitive agricultural practices ensures sustainable food production and availability. Education and awareness campaigns empower communities to make informed dietary choices, thereby reducing the risk of malnutrition-related diseases. A multi-sectoral approach involving healthcare, agriculture, education, and social protection systems is essential for long-term success. Technological innovations, including digital nutrition tracking and mobile health applications, enhance monitoring and early detection of malnutrition cases. By prioritizing preventive measures, societies can significantly reduce malnutrition rates and improve overall public health.

**Keywords:** Malnutrition prevention, food security, balanced diet, micronutrient deficiency, breastfeeding, nutritional supplementation, healthcare policies, stunting, sustainable agriculture, public health.

## Introduction

Malnutrition affects over 2 billion people worldwide,

making the prevention of malnutrition a critical global health priority. Recent WHO research indicates that without immediate intervention, these numbers could rise significantly by 2025, threatening global health security and economic stability.

The challenge is particularly severe in developing regions. Specifically, the prevention of malnutrition in India represents one of the most pressing public health challenges, with millions of children and adults at risk. However, new evidence-based strategies and technological innovations are showing promising results in addressing this crisis.

This article examines the latest WHO research findings on malnutrition prevention, exploring practical intervention strategies, technological solutions, and cost-effective programs. We will analyze current statistics, evaluate economic impacts, and discuss evidence-based frameworks that are transforming the approach to nutritional health worldwide.

## Global Burden of Malnutrition in 2025

The World Health Organization's latest research reveals an alarming projection of malnutrition cases by 2025. Currently, **2.5 billion adults** are overweight, including 890 million living with obesity, while 390 million remain underweight<sup>1</sup>. Furthermore, 149 million children under 5 suffer from stunting, 45 million from wasting, and 37 million from overweight conditions <sup>1</sup>.

## Current Statistics and Trends

Progress toward global nutrition targets remains insufficient. At present rates, the world will miss the 2025 target by 39.5 million children, with more than 80% of these missed cases occurring in Africa<sup>2</sup>. Moreover, only seven countries are on track to meet four of the six maternal, infant and young child nutrition targets<sup>3</sup>. The situation worsens as 11 million people die annually from nutrition-related diseases<sup>4</sup>.

## Economic Impact on Healthcare Systems

The financial burden of malnutrition on healthcare systems is substantial. In the UK alone, annual expenditure on managing patients with medium or high risk of disease-related malnutrition amounts to £7.3 billion (€10.5 billion)<sup>5</sup>. Additionally, the economic burden of hospital malnutrition in Asia reaches INR 2539.85 billion annually<sup>6</sup>. Consequently, increased length of hospital stays accounts for 77.2% of incremental costs in wards and 11.5% in ICU settings<sup>6</sup>.

## Regional Disparities and Challenges

Regional variations in malnutrition present distinct

challenges. Eastern and Western Africa, along with South-central Asia, face the highest prevalence of stunting among UN sub-regions<sup>2</sup>. In Asia, despite projections showing a decrease in stunting prevalence from 28% to 17% by 2025, the region will still account for 57 million stunted children<sup>2</sup>. The situation is further complicated as poverty amplifies malnutrition risks, creating a cycle of poverty and ill-health<sup>1</sup>.

WHO's Evidence-Based Prevention Framework

In 2023, WHO launched a groundbreaking framework to combat acute malnutrition in children under 5 years old<sup>7</sup>. This milestone marks a crucial shift in global nutrition policy, emphasizing both prevention and management strategies.

Key Research Findings

The World Health Organization's research indicates insufficient progress toward 2025 nutrition targets. Initially, only one-third of countries remain on track to share childhood stunting by 2030<sup>8</sup>. Subsequently, merely one in six countries shows progress toward the 3% prevalence target for overweight conditions<sup>8</sup>. The framework addresses these gaps through evidence-based interventions.

Updated Clinical Guidelines

The new WHO guidelines present 19 recommendations, including 12 new protocols and 7 updated standards<sup>9</sup>. These guidelines primarily focus on:

- Child-centered care approaches linking mothers and infants
- Breastfeeding promotion and nutrient-dense home diets
- Community health worker engagement in evidence-based care <sup>7</sup>

Implementation Strategies

WHO collaborates with UNICEF to develop pragmatic operational guidance<sup>7</sup>. Accordingly, the implementation framework emphasizes comprehensive assessment and support systems. The strategy requires significant health system restructuring, resource allocation, and workforce expansion<sup>10</sup>. Furthermore, the framework addresses cultural and linguistic barriers that often limit facility-based care access<sup>10</sup>.

The guidelines stress continuity of care as vital for

effective follow-up, incorporating environmental health aspects, food security, and economic stability assessments<sup>9</sup>. Notably, the framework recognizes that achieving sustainable improvements necessitates governmental action and policy changes<sup>10</sup>.

Technology-Driven Prevention Solutions

Digital technologies are reshaping the landscape of malnutrition prevention through innovative monitoring and assessment solutions. First thing to remember, these advancements offer scalable and timely interventions for identifying and preventing nutritional deficiencies.

Digital Health Monitoring Systems

NutriDash, UNICEF's global monitoring system, hosts the largest database of maternal and child nutrition programs, tracking over 125 countries<sup>11</sup>. In essence, this system enables decision-makers to monitor program performance and accelerate progress toward Sustainable Development Goals. The Poshan Tracker, another notable system, monitors over 7 crore children monthly across India, creating heat maps for malnutrition hotspots<sup>12</sup>.

AI-Powered Nutritional Assessment Tools

Artificial Intelligence has introduced precise methods for nutritional assessment. The Child Growth Monitor app uses infrared sensors to capture 3D measurements of children's height, body volume, and weight ratio down to the millimeter<sup>13</sup>. Thus, field workers have scanned over 7,000 children, with data stored securely in cloud systems for immediate analysis<sup>13</sup>. Likewise, the Methods for Extremely Rapid Observation of Nutritional Status (MERON) technology analyzes facial characteristics to detect malnutrition through a single photograph<sup>14</sup>.

Mobile Apps for Dietary Management

Mobile applications have emerged as effective tools for dietary monitoring and assessment. Research indicates that digital tools lead to more successful weight management outcomes compared to traditional methods<sup>15</sup>. These apps manage users' data and employ advanced analytics to generate personalized recommendations<sup>16</sup>. The integration of digital technology into nutritional assessments has improved data accuracy while reducing participant burden<sup>16</sup>. Therefore, mobile apps equipped with AI algorithms provide real-time feedback and dietary

recommendations, reaching users across different socioeconomic backgrounds<sup>17</sup>.

### Cost-Effective Intervention Strategies

Limited budgets for nutritional interventions necessitate strategic resource allocation to maximize impact. Presently, quantitative tools guide budget decisions, ensuring optimal use of available resources for malnutrition prevention programs<sup>2</sup>.

### Community-Based Programs

The FARN (Foyers d'Apprentissage et de Réhabilitation Nutritionnelle) approach demonstrates remarkable success in sustainable malnutrition management<sup>18</sup>. This community-based initiative encourages consumption of locally available foods, protecting both ecosystem balance and nutrition security. Given these points, evidence shows that 85-90% of children with severe acute malnutrition can receive treatment at community level<sup>19</sup>.

### Healthcare System Integration

Primary healthcare integration of nutrition services generates substantial health gains. Essential nutrition actions integrated into health systems reduce healthcare costs by<sup>20</sup>:

- Preventing diet-related chronic diseases
- Reaching broader population segments
- Requiring minimal individual effort
- Maintaining cost-effectiveness at scale

Overall, community-based management of acute malnutrition delivered through health workers proves eight times more cost-effective than inpatient treatment<sup>21</sup>.

### Resource Allocation Models

The Optima Nutrition framework optimizes resource distribution across interventions. As a result, improved allocative efficiency could increase the number of non-stunted children by 1.32 million (5.1%) through national program funding<sup>2</sup>. Essentially, prioritizing interventions based on cost-effectiveness shows that promotion of improved infant and young child feeding practices, alongside vitamin A supplementation, yields maximum impact<sup>2</sup>.

Mathematical modeling indicates that optimized reallocation of current spending substantially improves pregnancy-related and child health outcomes without

additional funding<sup>22</sup>. The current expenditure on six key interventions totals approximately USINR 1856.37 million<sup>2</sup>, demonstrating the scale of investment required for effective malnutrition prevention programs.

### Conclusion

Malnutrition prevention stands as a critical global health priority demanding immediate action. Research demonstrates that strategic implementation of WHO guidelines, combined with technological innovations and community-based programs, offers promising solutions to this widespread challenge.

Evidence-based interventions through WHO's comprehensive framework provide a solid foundation for addressing malnutrition. Digital health monitoring systems like NutriDash and AI-powered assessment tools significantly enhance early detection capabilities, while community-based programs prove eight times more cost-effective than traditional treatment approaches.

The economic impact remains substantial, with healthcare systems spending billions annually on malnutrition-related complications. Nevertheless, optimized resource allocation models show that existing funding, when strategically distributed, can increase the number of healthy children by 5.1% without additional investment.

Success in preventing malnutrition requires coordinated efforts across multiple sectors. Countries implementing integrated approaches through primary healthcare systems, supported by digital technologies and community engagement, demonstrate measurable progress toward 2025 nutrition targets. These evidence-based strategies, coupled with sustained commitment from governments and healthcare providers, pave the way for effective malnutrition prevention worldwide.

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# Capitalizing Healthier Communities: Ways to Stop Malnutrition

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## Introduction:

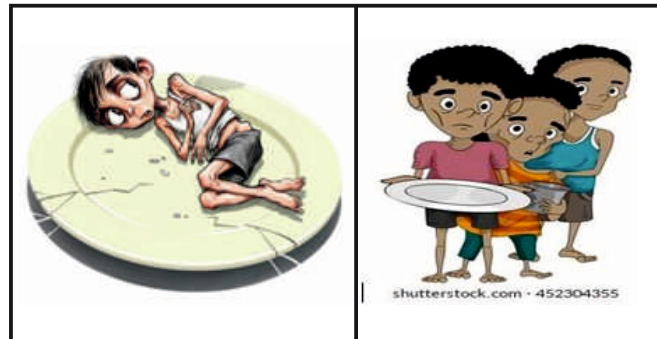
Millions of people around the world suffer from malnutrition, which continues to be one of the most serious global health issues. Undernutrition and overnutrition are both contributing factors to this complicated problem, which can have serious health effects, including delayed growth, decreased immunity, and even life expectancy. Although poverty and food insecurity are frequently linked to malnutrition, social, economic, and environmental issues are closely linked to the condition's causes. Community empowerment is essential to effectively addressing this issue. By providing individuals and organizations with the necessary information, materials, and equipment, we can develop long-term strategies to stop malnutrition. Global Nutrition Report. (2021)

## Identifying Malnutrition, A Humanitarian Issue:

Malnutrition is a lack of vital nutrients required for healthy growth and development, not only hunger. The World Health Organization (WHO) estimates that malnutrition accounts for around 45% of mortality among children under five. Adults are similarly affected, which results in poor quality of life, reduced work efficiency, and recurring illnesses. World Health Organization. (2020).

## Understanding Malnutrition:

An estimated 900 million individuals worldwide suffer from malnutrition, which has long-term negative effects on their health and the economy on both an individual and social level. The total incidence of malnutrition is still high, despite advancements in effective treatment and prevention measures. Patel, D. R., Agnetta, A., & Shrestha, M. (2023).



<https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.shutterstock.com>

## Forms of Malnutrition

**Undernutrition** -lack of food intake or lack of variety in one's diet. This condition involves stunting, wasting, and micronutrient deficiencies.

**Overnutrition:** This refers to incurable disorders linked to diet and obesity, which often come on by consuming an excess of unhealthy foods.

## Education, The Key to Prevention:

Malnutrition can be addressed in large part through education, especially when it is given by instructors who are enthusiastic about the subject. ten Cate, D., van den Boomgaard, I., & Ziylan, C. (2023) Nevertheless, the precise character of these views is still unknown and needs more research. There is an urgent need for a comprehensive strategy for evaluating and developing therapies for childhood malnutrition. The National IAP Action Plan (2015) includes Nutrition Education Programs (NEP), which make this especially timely. The goal of such initiatives is to give communities the information and abilities they need to effectively fight malnutrition.

The Food and Agriculture Organization (FAO) places a strong emphasis on experiential, hands- on learning strategies that are intended to influence behavior, especially with regard to complementary feeding methods in an effort to promote behavior change, especially in nutritional practices. The FAO places a strong emphasis on experiential, hands-on learning methods. To encourage the broad adoption of these methods, this involves educating community nutrition advocates, agricultural extension agents, and health professionals. The FAO hopes to have long-lasting, significant effects on preventing malnutrition and promoting general population health Elizabeth, K. E. (2016).



## Community-Driven Initiatives: UNICEF. (2021)

Giving people the tools to take charge of their diet promotes sustainability and increases resiliency to upcoming difficulties.

### Conclusion:

“We must work together to create a healthier future”

Communities, governments, and organizations must work together to prevent malnutrition. By providing information, resources, and support to communities, we can develop long-lasting solutions that tackle the underlying causes of malnutrition. Every action we take helps us go closer to a society where everyone has the chance to prosper, from expanding access to wholesome food to strengthen healthcare systems and utilizing technology.

Combating hunger is about more than just food; it's about equality, dignity, and the right to a healthy life. We can work together to create a future free from destruction caused by starvation.

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# Impact of Functional Foods in Preventing Malnutrition

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## Introduction:

Malnutrition is a significant health condition arising from an imbalance in nutrient intake, which can manifest as either under nutrition or over nutrition. It may be the result of several conditions. First, sufficient and proper food may not be available because of inadequate agricultural processes, imperfect distribution of food, or certain social problems such as poverty or alcoholism. In these instances, the cause of malnutrition is most often found to be a diet quantitatively inadequate in calories or protein. According to WHO, malnutrition refers to three different types of conditions:

- (1) **Undernutrition:** It is a class of malnutrition which includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age) and underweight is the major reason for death in world.
- (2) **Micronutrient-related malnutrition:** It is a class including micronutrient deficiencies (a lack of essential vitamins and minerals) or excess micronutrient.
- (3) **Overweight, obesity and diet-related non-communicable diseases** is included under third class (such as heart disease, stroke, diabetes and some cancers).

Hunger and undernourishment are like cycle which is followed from generation to generation. With respect to Global Nutrition Report of 2016 and the United Nation's second Sustainable Development Goal, Zero Hunger, the world's target is to end world hunger and malnutrition by 2030. Global Nutrition Report of 2020

targets to achieve six indices of nutrition by 2025 and aims to reduce stunting by 40% in children. India is combating malnutrition by government initiatives like providing nutrition through schools, but still needs a clear vision to remove malnutrition from the country. Functional foods can help us achieve the target of reducing global hunger and malnutrition with proper management.

## Role of Functional food:

For the first time in 1984 Japan introduced the concept of "Functional foods". Functional foods are defined as foods that provide health benefits beyond basic nutrition, often due to the presence of bioactive components that can positively affect physiological functions in the body. According to a recent study, the global demand for functional foods is rising by 8% annually. In simple words functional foods can be natural food, in which nutrients and ingredients have been added or removed using biotechnological processes and thus impacting positive physiological health benefits and helping to reduce the risk of chronic illness. Bioactive compounds are the main factors which helps functional foods to work in positive way by improving health conditions. Some of the major bioactive compounds include anti-inflammatory, antioxidants, antifungal, vitamins, and minerals. These all are responsible for giving maximum health benefits.

Functional foods should be a part of our everyday diet. People with food allergies, sensitivities, and lactose intolerance can be given functional foods through diet. Consuming functional foods on a daily basis can lower the risk of conditions like osteoporosis, diabetes, metabolic syndrome, and cardiovascular disease. In certain situations, it is better to consume particular bioactive ingredients in order to have some positive health effects. However, since the daily health benefit is linked to longer-term health goals, functional foods cannot be utilized as a disease therapy for patients. The new functional food strategy targets individuals with specific needs, such as low sugar, low salt, or gluten and lactose-free options, in addition to offering the required nutrition. Functional foods can therefore be used to alleviate severe malnutrition. A number of vitamins and minerals are essential for healthy growth, including flavonoids, omega-3 and omega-6 polyunsaturated fatty acids, zinc, iodine, vitamin A, and vitamin C. These are the most vital nutrients our body requires in order to function optimally. These nutrients possess great potential to improve overall health, for instance, preventing malnutrition, and protecting

against chronic diseases.

The traditional Indian diet is “functional” as it contains high amounts of dietary fibre (whole grains and vegetables), antioxidants (spices, fruits, and vegetables), and probiotics (curds and fermented batter products), which are wise choices for optimum health. Many Indian traditional foods impart beneficial effects on human physiology beyond providing adequate nutrition.

## Traditional Functional Foods of India:

Indian traditional foods are the plate of colourful ingredients mainly consisting of whole grains, legumes, fresh vegetables and fruits, and an array of spices and herbs. These ingredients are not only a rich source of essential nutrients but are also a great source of vitamins, minerals, fibre and antioxidants. Thus, understanding these ingredients and its nutritional values is also crucial for addressing modern dietary and lifestyle challenges such as malnutrition, obesity and noncommunicable diseases. The secret of Indian traditional balanced nutritious yet healthy and tasty meal is locally sourced, seasonal ingredients and sustainable food preparation methods. Indian traditional food is a treasure trove of all the essential nutrients which impacts positively on our body preventing us from all mentioned dietary challenges.

Easily available and affordable functional food suitable for all age population are *Moringa oleifera* (Drumstick) and Coconut (Copra).



The gem of traditional functional food which was consumed regularly in Indian diet and has immense benefits is *Moringa oleifera*. It's regular consumption not only provide us with essential nutrients but also helps to manage various lifestyle conditions and malnutrition. *Moringa oleifera* contains protein, amino acids, vitamins (A, B, C, E, beta carotene), and minerals (calcium, phosphorus, and iron), which can be used to combat undernutrition. Minerals such as calcium, iron, potassium, copper, and zinc found in Moringa are essential in preventing and treating malnutrition and micronutrient deficiencies. Moringa is

a good source of protein and other essential nutrients. Plant-based protein alternatives such as *Moringa oleifera* can be used as a treatment or preventative measure for undernutrition.



Second functional food of India is coconut known as the 'tree of abundance', 'tree of heaven', and 'tree of life' owing to its numerous uses. A “wonder fruit” coconut has intrinsic rich macro and micronutrient profile for human health and nutrition. Coconut proteins, oil, and water are all important products, in addition to derived products such as coconut palm sugar. Coconut is regarded as a good source of holistic nutrients in modern times to help with malnutrition and sickness. Coconut water is considered functional and therapeutic as it is composed of carbohydrates, phyto hormones, amino acids, minerals, and vitamins. Coconut flesh is rich in protein, dietary fibres, lauric acid and possesses immuno modulating, antioxidative, anti-diabetic and anti-cancer, antibacterial properties, as well as the ability to boost immunity and to prevent cardiovascular diseases.

## Utilization in diet:

Moringa seeds, drumsticks, leaves, flowers if consumed regularly acts as miracle for our body. It can be consumed fresh or in dried forms. Nowadays moringa leaf powder is used in soups, crackers, biscuits, snacks, protein energy bars and many more products. Fresh leaves, flowers and drumsticks are cooked separately and are seasoned with spices like garlic, turmeric, pepper, cloves, ginger, chillies and consumed in our traditional form of rasam, sambhar, dal, leaves sabji with added fresh coconut and leaves chutney. Soup made with combination of drumstick,



leaves, flowers, ginger, garlic onions, tomato, coriander leaves seasoned with black pepper and lemon juice is relishing winter soup. Powdered moringa leaves can be utilized in sauces and spreads used in pizza, burger which will make these junk little healthy.

Coconut is traditional Indian *prashad* offered to God to make it more palatable and increase nutritional contents it was mostly mixed with jaggery, roasted chickpeas (*futane*). Coconut water is used in various traditional recipes for soaking *sabja*, *aliv* seeds or consumed as it is. Coconut flesh or protein has immense application in traditional foods like *modak*, *barfi*, *ladoo*, etc. Coconut protein and water when blended together and filtered from muslin cloth yields coconut milk which is used in various traditional sweets and nowadays it's been used widely as flavoured milk and a best option for lactose intolerant people. *Solkadi* is also one of the best traditional summer coolants made of coconut milk, kokum and spices like chillies, coriander and cumin. Dry coconut and coconut meal after oil extraction is used widely in crackers, biscuits, cookies, chips, snacks, chutney etc. Indian cuisine is incomplete without coconut either fresh or dried from is used in gravies and curries.

## Conclusion

Malnutrition is the most common global problem and has wide-ranging effects on physiological function, as well as being associated with more severe diseases in patients. Poor diet, mental health problems, mobility problems, digestive disorders, stomach conditions and alcoholism etc, are all potential causes of malnutrition. Eating a balanced diet that contains the recommended number of fruits, vegetables, grains and protein-rich foods is the best way to prevent malnutrition. Including supplement and the addition of micronutrients or fortified foods into diets can also help prevent malnutrition. From various researches and studies conducted it is observed that the increased consumption of functional food will provide the major nutrients which are essential for normal body function and is critically important, particularly in older adults. Thus, functional food can possess a key role in protection against malnutrition. Furthermore, the evolution of functional foods could be a simple way to improve people's health and wellbeing, particularly in regions of high malnutrition and low food availability. Thus, moringa and coconut are easily available and affordable functional food in India. ☐



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