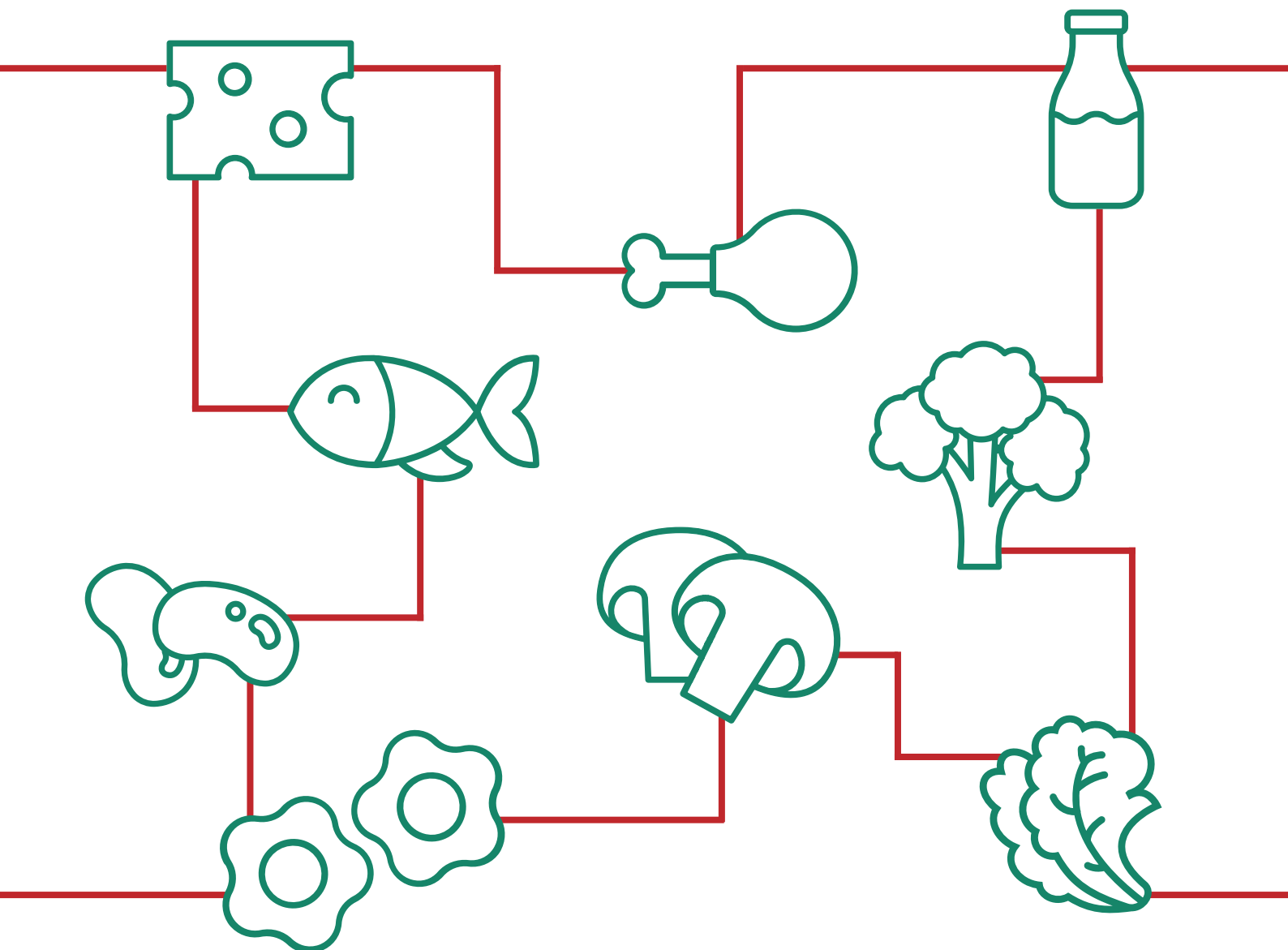


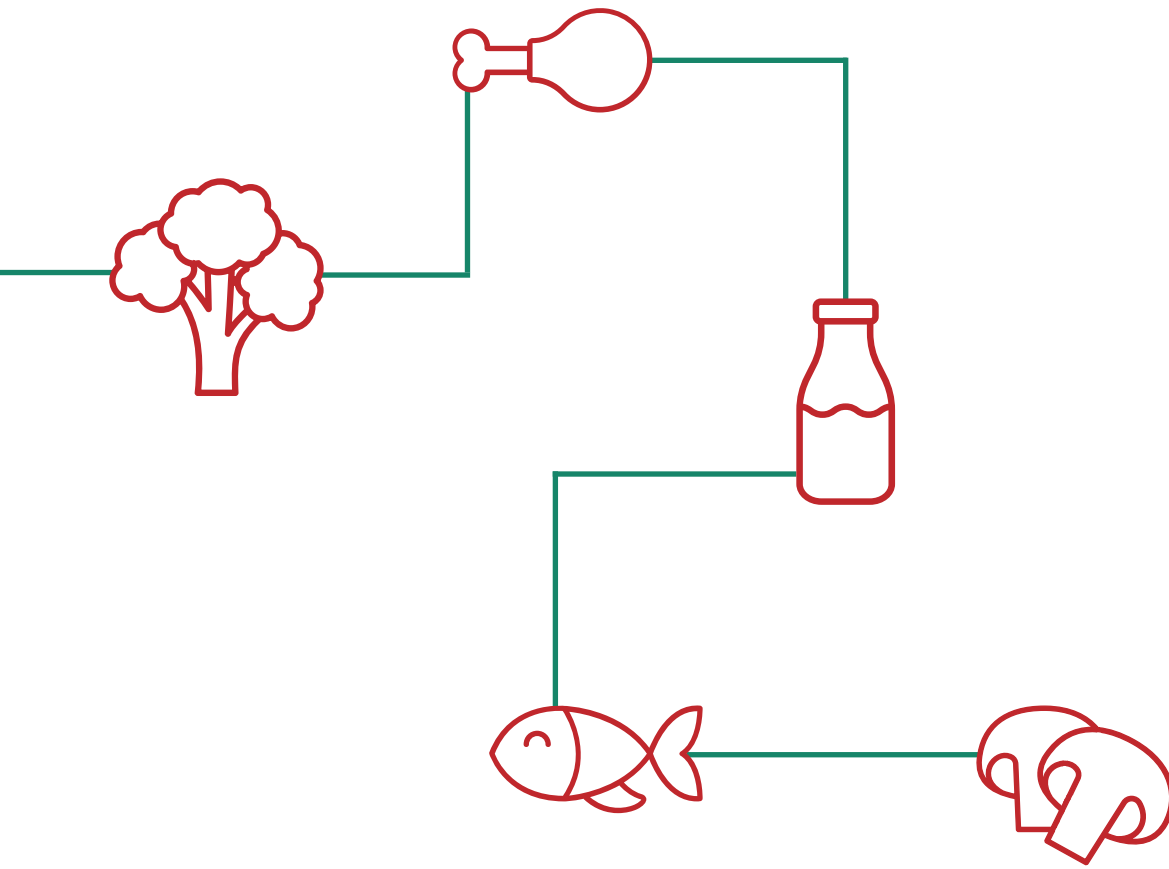
India's protein PARADOX

Unveiling the paradox of knowledge, perceptions
and practices that undermine protein consumption
in Indian households.



About the Protein Paradox Study

Protein Paradox, is a study by Right To Protein, developed based on the research conducted by commissioned research company Nielsen. The Protein Paradox study aims to understand and identify the practical challenges that pose as a barrier to protein consumption in India, including common myths and practices about protein, and facilitate evidence-based discussions by focusing on data, statistics and objective information. This study has been developed basis results from a survey which included 2,142 mothers of children in the age groups of 6-18 years residing in 16 cities across India. Right To Protein commissioned Nielsen to conduct this survey using a combination of Computer Assisted Personal Interviews (CAPI) as well as Face to Face (F2F) interviews in various local languages. The sample was based on the New Consumer Classification System (NCCS) which classifies households in India based on two variables – education of the chief wage earner and number of consumer durables owned by the family.



If all the essential factors are conducive, would an individual still consciously procure and consume protein?

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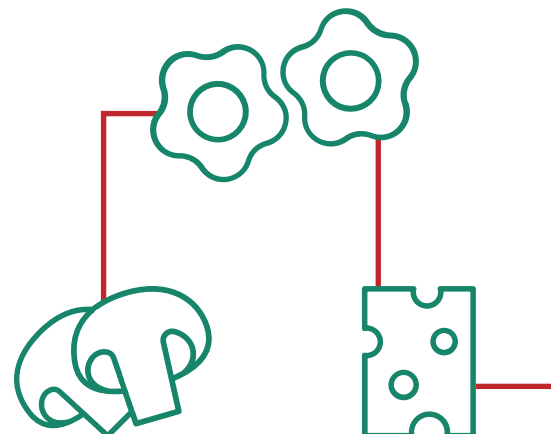
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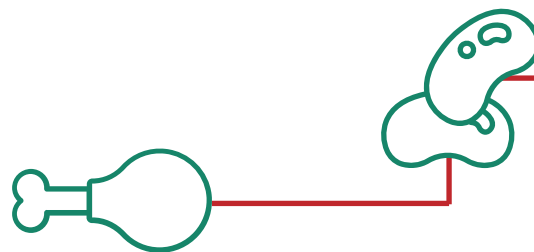
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FOREWORD



Today, India is gripped with the dual burden of malnutrition and obesity. This burden cuts across age groups and socioeconomic strata of the country. The national and global rise of non-communicable diseases (NCD) has made it necessary for researchers and healthcare professionals to develop sustainable preventive and therapeutic treatment strategies.

One such preventable measure is to fix an imbalance in the quantity and quality of macronutrients in our diets which are major contributors to meta-inflammation in the body – a prerequisite for the onset of NCDs. This imbalance is contributed through an overemphasis on refined carbohydrates, saturated fats and inadequate quantity and quality of proteins in the daily diet.

Protein, an essential macronutrient with muscle building and regulatory roles is essential for the synthesis of hormones and essential immune modulating regulators. This is why regular Indian diets need to urgently recalibrate the quantity and quality of proteins consumed per day. **Although as per the Recommended Dietary Allowance (RDA) given by Indian Council of Medical Research (ICMR) for Indians, average Indian adult need 0.8g-1gm per kg ideal body weight of protein, the average dietary intake is only close to 0.6 g per kg ideal body weight.**

The premise of a conversation on protein adequacy in India is limited, especially since both vegetarian and non-vegetarian households lack awareness of quantity requirement and variety of protein-rich foods for daily consumption. **In other words, in India, protein consumption has been a rather under-debated subject when it comes to the general discourse on food and nutrients.** While various studies over the years have clearly revealed to us the fragmented share of protein in Indian diets and the declining consumption over time, there have been no major study that analyzed the influencers of this conscious under-consumption of protein.

Experts have asserted the importance of building protein intake awareness in India and finding appropriate solutions to encourage citizens to fulfill daily protein requirements. **However, there is still much to be known about the cause-and-effect progression of protein deficiency considering the heterogeneity and diversity of Indian population.** It is true that in India, there is a vast difference between what people would wish to consume and what they must consume because of innumerable barriers around caste, religion, culture, cost, geography, etc. However, several more nuanced factors often get ignored when trying to put a finger on why the Indian population excludes protein from its plate day after day.

The important question then to be asked is, if all the essential factors are conducive, would an individual still consciously procure and consume protein?

This whitepaper tries to answer this question, through the responses of a nationwide survey designed to capture the nuanced perceptions and habits of mothers, the most important stakeholder with regards to protein consumption. **Mothers have been wisely chosen as the target audience, recognized as the primary food purchase decision-makers and the main influencers of what their household consumes.**

While behavioral change is a journey, this study and its findings throw light upon the knowledge gaps, practices and perception barriers and recommends carefully placed nudges to help people make better decisions.

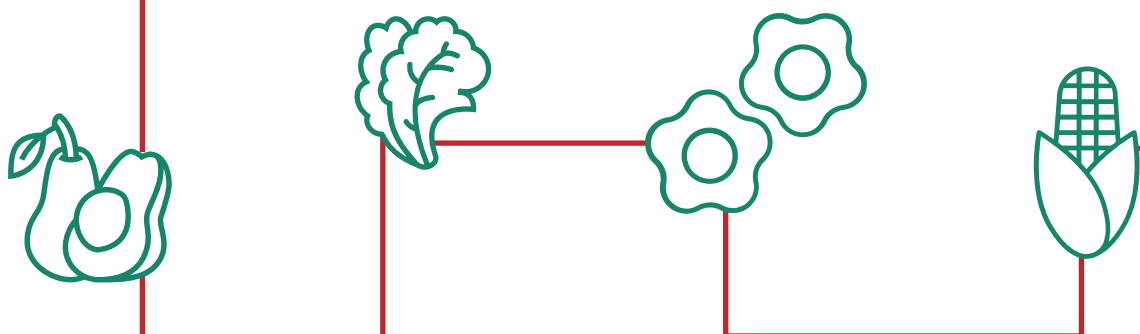
It is my hope and expectation that this much-needed paper will spearhead the conversation and advocacy on the need to counter protein deficiencies in India and will be a useful reference for all the stakeholders who play an important role in ensuring the nutritional well-being of the Indian population.

I would like to congratulate the Right to Protein initiative for bringing out this relevant report and taking up such a timely initiative to help India move closer to its goal of reducing nutritional deficiencies to promote the well-being of its citizens.



Dr. Jagmeet Madan

Eminent Nutrition Expert and Professor, Principal,
Sir Vithaldas Thackersey College of Home Science (Autonomous)
SNDTWU, Mumbai and National President, Indian Dietetic
Association, Supporter of the Right To Protein Initiative.

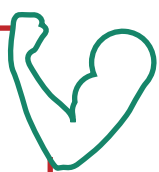


PROLOGUE

Why Protein Matters?

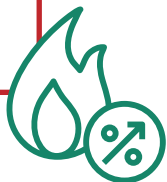
Proteins are often called the 'building blocks of life' as they are found in every part of the body and play a significant role in maintaining the health of our enzymes, muscles, tissues and bones. Protein is made up of 20 building blocks known as amino acids. Amino acids¹ are not stored by the human body; hence they need to be constantly replenished. Nine of the 20 amino acids are not synthesised by the body and thus must be sourced from the food we eat every day. Hence, it becomes crucial for human beings to consume a certain level of protein every day.

Protein has several health benefits –



Increases muscle mass and strength

Consuming adequate amount of protein helps stimulate muscle protein synthesis and promote and maintain muscle growth, thereby increasing stamina and strength.



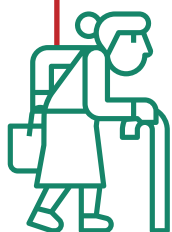
Metabolism booster

Protein is one of the key nutrients that promote weight loss, boost metabolism, and regulates hormones. Since protein consumption builds muscle mass, it ensures that the body is burning fat throughout the day.



Boosts immunity and repairs tissues

Protein is responsible for making molecules such as haemoglobin, immunoglobulins (responsible for immunity) and different enzymes (responsible for several chemical reactions and digestion in the body). Studies show that protein metabolism plays an important role in formation of natural and acquired immunity against infections². Hence, regular protein intake is essential for boosting immunity, wound healing and overall recovery from the regular wear & tear of the body.



Reduces ageing induced health problems

Adequate consumption of protein can reduce age-related muscle deterioration, sarcopenia and other health problems, keeping the joints healthy for a longer time.

What are the effects of protein deficiency

Deficiency of protein can lead to different health issues like slow growth, muscle loss, weak immunity, cardiac and respiratory conditions.

Poor wound healing

Deficiency of protein may lead to reduced collagen formation which can result in poor wound healing and slow recovery from injuries.

Nutritional diseases

The deficiency of protein can manifest in the form of sluggishness, slow healing, anemia³ and brain fog (lack of focus)⁴. If not addressed, this deficiency can lead to serious nutritional diseases in children like Kwashiorkor and Marasmus.

Sarcopenia

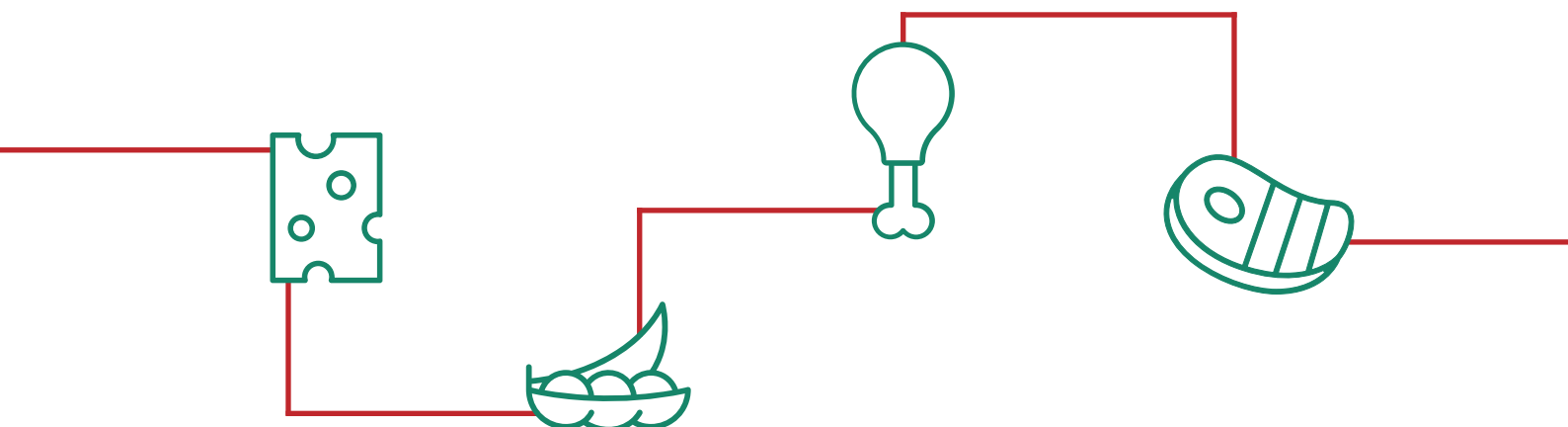
The consumption of low-quality protein has negative health effects for both children and adults such as sarcopenia which is a loss of skeletal muscle mass and strength.

Hyperproteinaemia

Hyperproteinaemia is caused either due to poor dietary intake, inability to absorb proteins or excessive loss from the body. Severe hyperproteinaemia, where a person has very little blood levels of protein, is a life-threatening situation.

Protein Energy Malnutrition (PEM)

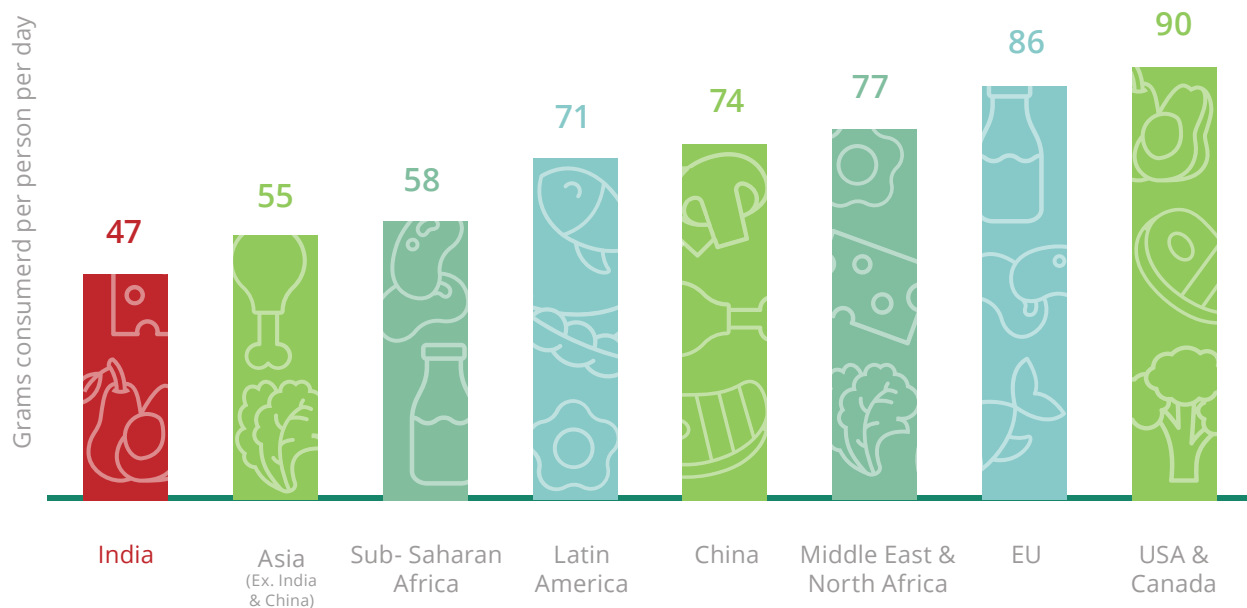
PEM is a common health and nutritional problem in India, especially amongst children and is one of the leading causes of malnourishment and under-5 mortality⁵. It is not only an important cause of childhood morbidity and mortality but leads also to permanent impairment of physical and possibly of mental growth of these who survive. As a result of PEM, 37% of the children in India were stunted, 21% wasted and 34% were underweight in 2014- 15⁶.



How Much Protein Do Indians Eat?

The national daily intake of protein in most countries around the world is much higher than that in India.

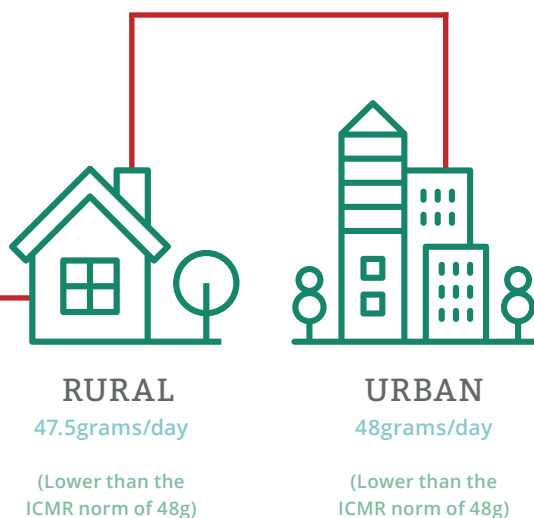
PROTEIN CONSUMPTION AROUND THE GLOBE

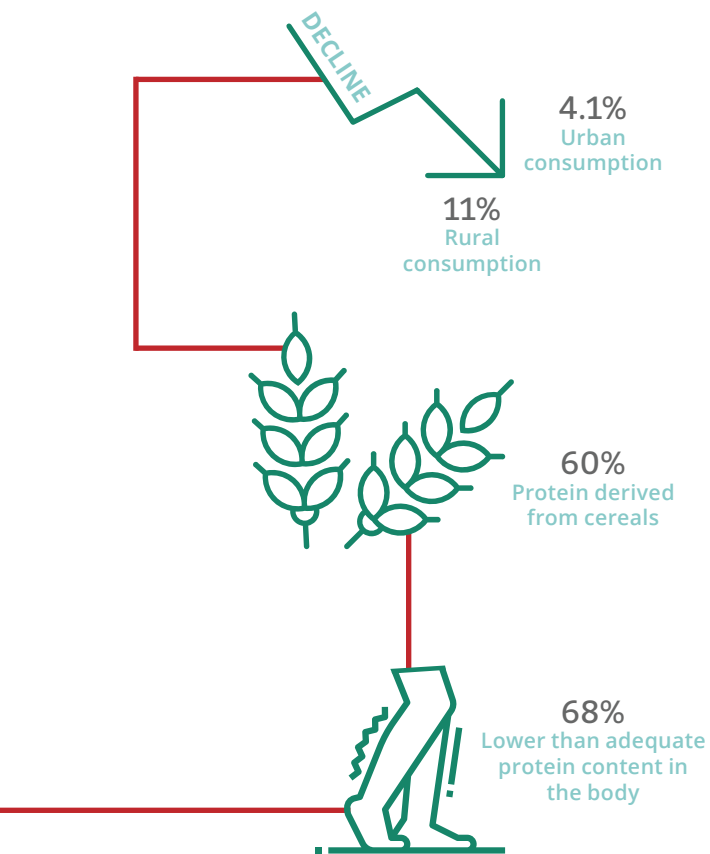


Source: World Resources Institute (April 2016)⁷

Low consumption

The Food and Nutrition Security Analysis undertaken by the Government of India and The World Food Programme in 2019⁸ reports that in rural areas, the average protein consumption is 47.5 grams/day (lower than the ICMR norm of 48g for rural areas) and in urban areas the average protein consumption is 47 grams/day (lower than the ICMR norm of 50g for urban areas). A 2017 survey⁹ by Indian Market Research Bureau (IMRB) found that 73% of urban rich Indians are protein deficient and 93% are unaware about their daily protein requirements.





Protein consumption is declining

The NSSO Consumer Expenditure Survey¹⁰ shows that the per capita per day protein consumption fell by 11% in rural areas and 4.1% in urban areas during the period of 1983- 2012.

Low quality protein sources

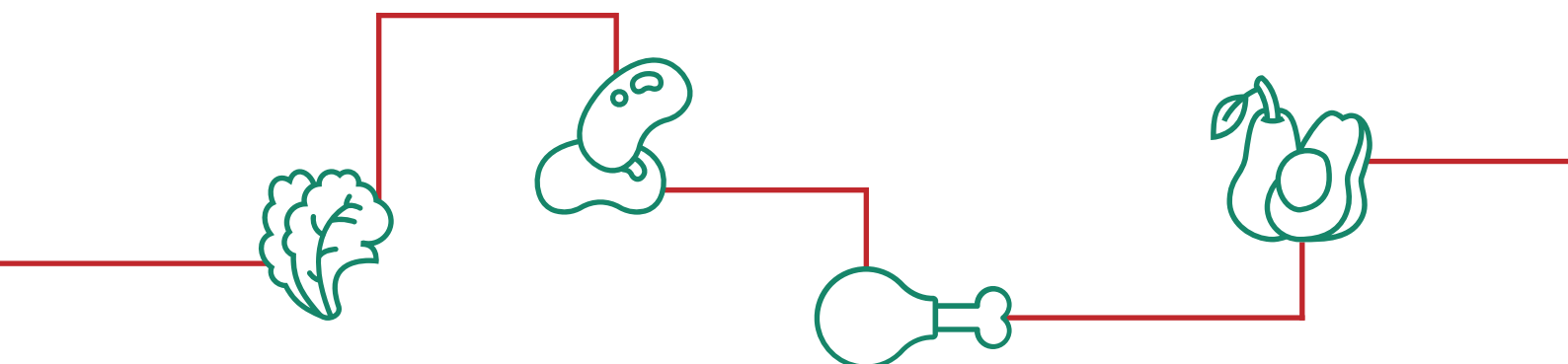
Several surveys by the National Nutrition Monitoring Board (NNMB) have shown that Indian diets derive almost 60 % of their protein from cereals which has relatively low digestibility and quality^{11,12}.

Deficiency leading to poor muscle health

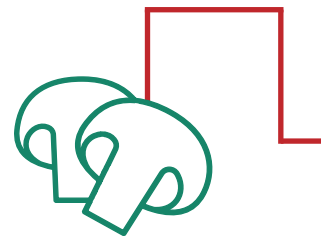
A 2018 IPSOS study found a correlation between protein deficiency and poor muscle health, revealing that 68% people in rural and urban India have lower than adequate protein content in their body.

The 2018 IPSOS study stated that 84% of Indian vegetarian and 65% of non-vegetarian diets are protein deficient. Similarly, in a 2017 survey by Indian Market Research Bureau (IMRB), it was found that 73% of urban rich Indians (in seven cities across the country) are protein deficient and 93% are unaware about their daily protein requirements¹³.

Indians on an average eat more simple carbohydrates (rice and flour), less complex carbohydrates, less protein (both animal and plant-based) and less fruit and vegetables than newly published dietary recommendations in 2019¹⁴. The Indian Consumer Market 2020 report revealed that in urban areas, beverages, refreshments and processed foods account for the highest monthly expenditure, while rural households spend the most on cereals; Indians spend only one-third of their food budgets on protein-rich foods.



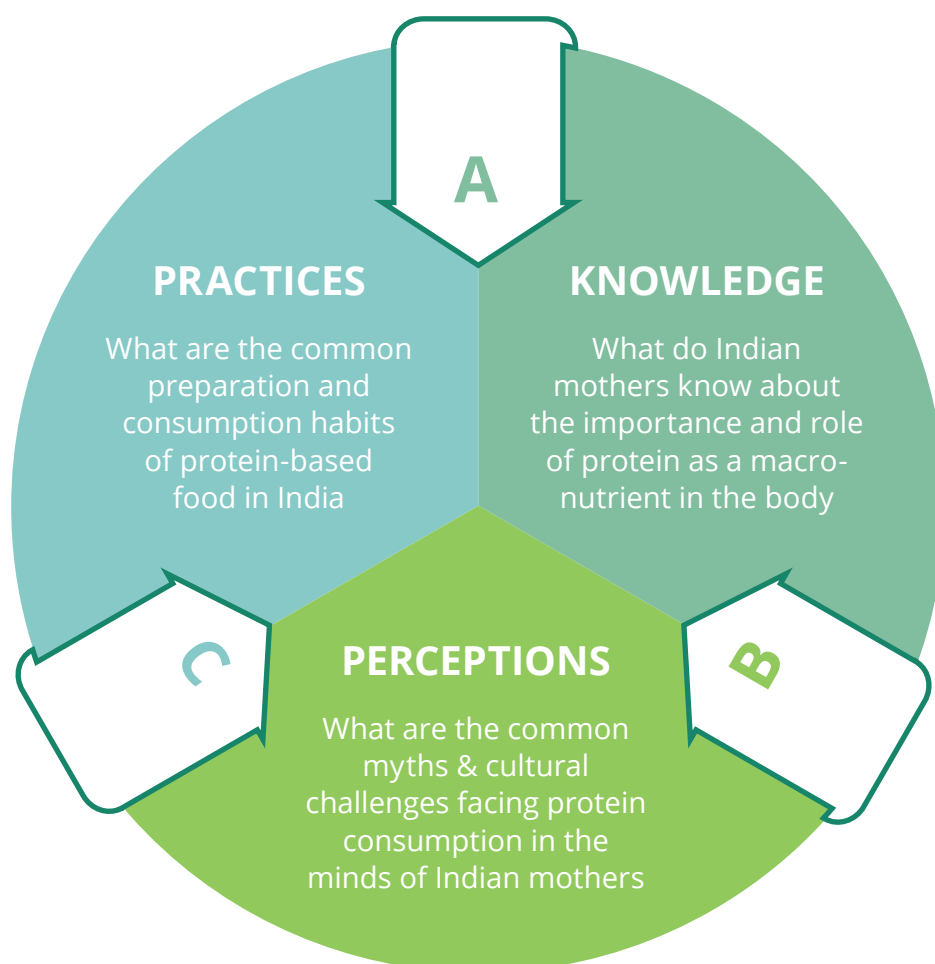
EXECUTIVE SUMMARY



The Objectives

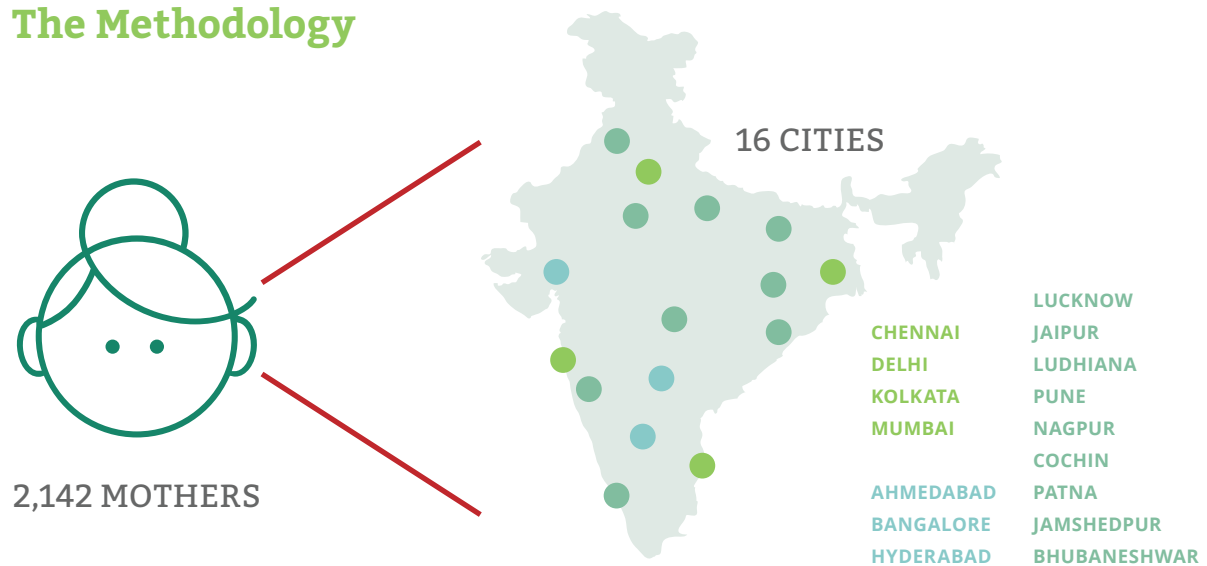
India's Protein Paradox is a nation-wide study commissioned by Right To Protein to understand and identify the practical challenges that pose as a barrier to protein consumption in India, including common myths and practices about protein, and facilitate evidence-based discussions by focussing on data, statistics and objective information¹⁵.

The study, conducted by Nielsen in India, is designed to learn about the most accurate challenges associated with the sustained protein deficiency issue in Indian households, focuses on three primary factors –



This paper hopes to set the ground for conversations for adequate protein consumption in India, highlight areas for action, and lead the way in advocating those actions to accelerate improvement in the nutritional deficiency of protein in India.

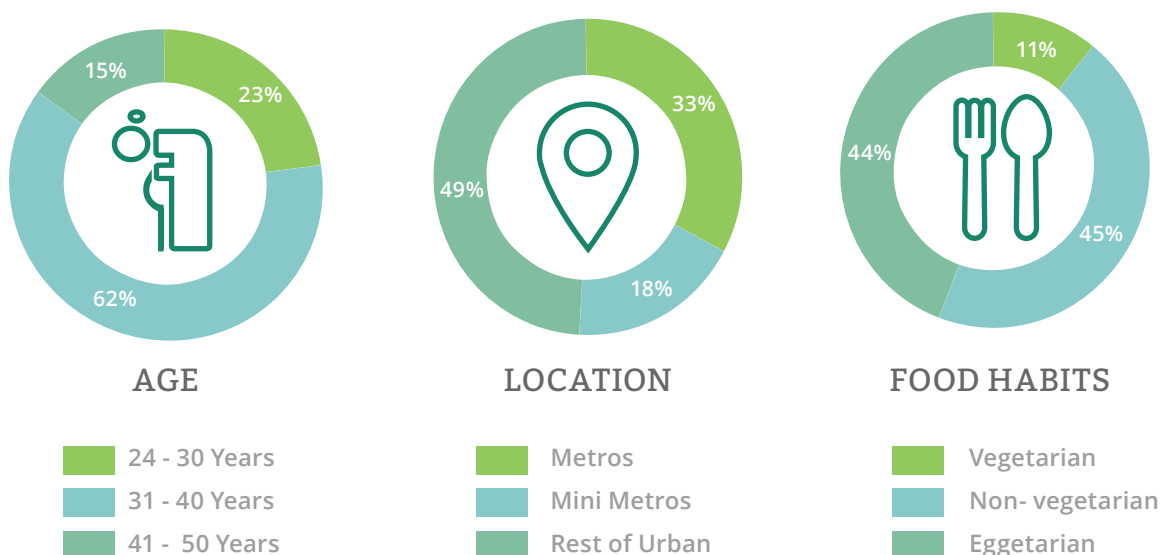
The Methodology



This study surveyed 2,142 mothers of children in the age groups of 6-18 years residing in 16 cities across India. Mothers were chosen for the study since women are the primary purchase decision-makers and highly influence the food consumption patterns of Indian households. The Right to Protein initiative hopes to use these insights to engage in corrective measures in the future among children who will have the opportunity to comprehend the importance of protein consumption at an early age.

The survey was conducted using a combination of Computer Assisted Personal Interviews (CAPI) as well as Face to Face (F2F) interviews in various local languages. The sample was based on the New Consumer Classification System (NCCS) which classifies households in India based on two variables – education of the chief wage earner and number of consumer durables owned by the family.

Metros include Chennai, Delhi, Kolkata and Mumbai, Mini-Metros include Ahmedabad, Bangalore and Hyderabad and Rest of Urban includes Lucknow, Jaipur, Ludhiana, Pune, Nagpur, Cochin, Bhubaneswar, Patna and Jamshedpur¹⁶.



Key Findings

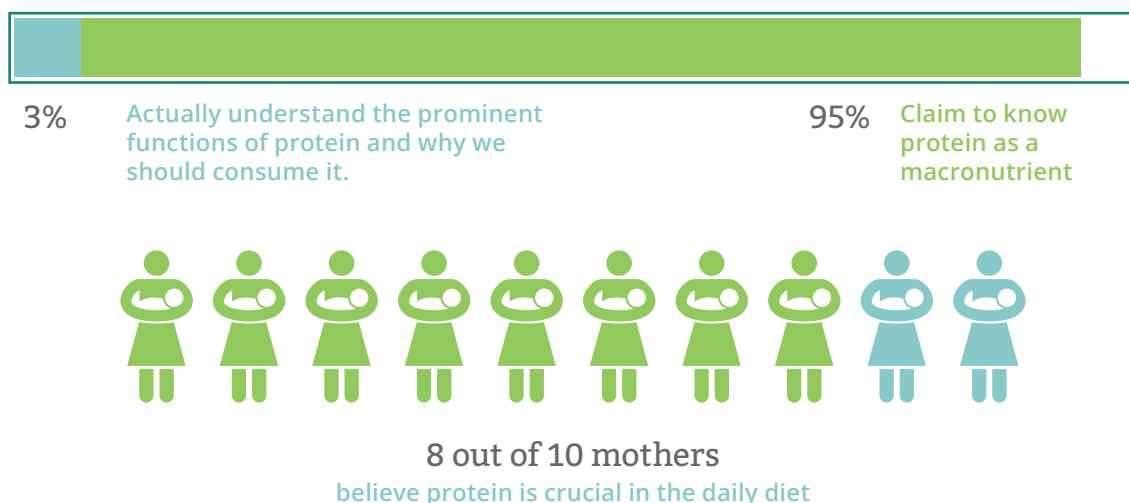
PROTEIN PAUCITY

While protein awareness exists, there is a low knowledge of protein sources which is causing poor protein consumption in Indian households.

The Protein Paradox study brings forth a worrying trend of Protein Paucity – the lack of protein consumption in Indian homes due to poor understanding of protein as a macronutrient, leading to the elimination of protein in the daily diet.

The study shows that although 95% of Indian mothers surveyed claim to know protein as a macronutrient, only 3% of the population really understand the prominent functions of protein or why one should consume it. If we compare cities, 82% mothers residing in mini metros such as Ahmedabad, Bangalore and Hyderabad were unable to correctly associate protein with its functions and attributed low importance to protein consumption as a part of balanced meals.

So, while eight out of ten mothers believe protein is “very important”, protein is not adequately included in their daily diet. This has detrimental consequences not just for the mothers’ health, but also for the health of their families as mothers tend to be the main decision-makers on food preparation in Indian households.



PROTEIN PSYCH

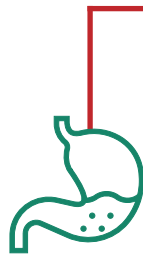
Mighty barriers of misinformation and myths are overshadowing protein consumption in Indian homes.

The survey revealed various myths and misconceptions which dilute the importance of protein and create barriers for its inclusion in daily diets.

More than 70% of Indian mothers surveyed believe in myths that protein is difficult to digest, leads to weight gain, is only for 'body-builders' and is expensive to procure. Furthermore, an average more than 85% of the cohort of mothers who believe that protein leads to weight gain also agreed that they would prioritise the consumption of vitamins and carbohydrates rather than protein for themselves and their children.



OVER 70%
Mothers believe in
myths about protein:



Difficult
to digest



Leads to
weight gain



Is meant for
body-builders



Is expensive
to procure

PROTEIN PINCH

Indian households reduce protein intake to a pinch amongst basic staples, as most protein sources remain unidentifiable.

While earlier findings reveal that the consumption of protein is not a priority in most households, it was even more concerning to find that most of the Indian mothers don't know the key sources of protein. During the survey, most mothers failed to correctly identify 8 of 11 protein-rich food items presented to them.

Furthermore, 81% of mothers incorrectly believe that just a regular Indian diet consisting of roti, dal, rice is enough for daily protein needs. As a result, dairy and pulses remain the primary high-protein sources of protein in majority Indian households. These beliefs, coupled with an inability to identify the correct functions and sources of protein lead to low protein consumption, despite 85% of Indian mothers believing that protein is very important for health.



Majority of Indian mothers were able
to accurately identify protein levels of

ONLY 3 OUT OF 11
protein-rich products

The Way Forward

Where does India's Protein Paradox leave us?

The Protein Paradox study points towards the urgent need for driving interventions to nudge a behavioural change in the consumer mindset towards protein to bridge the gap between knowledge and practice, with informed perceptions. However, this can only be achieved through the participation of various stakeholders in the ecosystem.

Therefore, we reached out over 500 experts from the health and nutrition ecosystem in India to determine the way forward for every stakeholder who can help reverse India's Protein Paradox.

Below are the key steps identified basis the recommendations and suggestions from the ecosystem to enable our households in achieving protein sufficiency –



GOVERNMENT OR ORGANISATIONAL BODIES



Mass public awareness

The government's role in increasing public knowledge on the importance of protein and its multiple sources was voted as a key action. **This includes public policies to grow protein accessibility and affordability in the country to change the course of nutrition imbalance in India's households.** There is also no dedicated programme in India that focuses solely on driving protein awareness and therefore, adequate protein consumption in daily diets of average Indians. The Government is well-placed to fill this gap by initiating a large-scale public health awareness campaign to increase overall awareness and nudge behavioural change to mitigate protein deficiencies of Indian households.

Change in nutrition policy

India's nutrition policies over the years have served well in the quest for calorie sufficiency, however there is now an urgent need to pivot from quantity of calories to quality of calories. The Indian Government is the controller of one of the largest food stocks in the world, through the public distribution system (PDS) which is a powerful influencer of how households at the lower end of the income pyramid choose what they eat. However, the high focus on cereals is concerning, and though the PDS has provisions to distribute pulses, it is not being implemented across states¹⁷. **An important first step would be to ensure that food subsidies include quality protein foods¹⁸.**

FOOD INDUSTRY



Protein Fortification

With increasingly urbanized lifestyles and high dependence on packaged and pre-processed foods, the food industry can play an important role in tackling nutritional deficiencies and encourage healthy lifestyles. **The key recommendation here is for protein producers to not only help provide protein-fortified foods but also focus on protein-rich feeds, in case of animal protein.**

Protein accessibility & affordability

It is crucial that industry works together to make animal-based proteins more affordable and encourages the production and supply of pulses and other plant proteins in India. **There is also an urgent need to focus on other plant-based alternatives of protein like millets, quinoa, paneer and tofu as well as affordable options of protein-fortified foods.** The food industry also has a responsibility to provide better nutritional information to consumers and make investments in healthy food as responsible food firms.

EDUCATIONAL INSTITUTIONS



Schools as a System to Improve Nutrition

Educational institutions can create awareness by initiating healthy eating campaigns for students and their parents. This includes **encouraging parents to include protein sources in the daily diets of their children.**

Updating School Food Policies

Experts suggest the absence of food policies in educational institutions has resulted in supply of unhealthy and unhygienic food in canteens and heavy marketing of nutrient-poor and unhealthy food at institutions¹⁹. Therefore, in schools where mid-day meals are provided to children, protein must form a significant part of the meal.

The active participation of parents and teachers in canteen decisions and dedicated sessions on the role of protein and other nutrients for well-being is a must to inculcate the right eating choices at a young age.

MEDIA



Fighting the misinformation effect

Media has been used as an effective tool for imparting nutrition education and promoting the consumption of certain micro and macro nutrients. But a concerted media campaign is required for spreading awareness about protein requirements and sources, to dispel myths and expand the acceptability. **Nearly 45% of industry experts surveyed by us believe that increased visibility of content on protein and awareness initiatives by industry in the media are needed to drive protein consumption.** For this it is essential that various stakeholders join hands with the media to increase visibility of informational content on protein consumption and initiate behavioural campaigns through social media, surveys, etc.

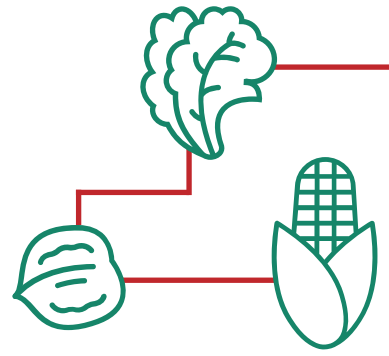
NUTRITIONISTS, DIETICIANS AND HEALTH EXPERTS



Informed thought leadership

Nutritionists and dieticians need to engage in dynamic and proactive, contextualised communication to encourage consumers to adopt healthy eating habits and lifestyles. They can play a key role in sensitising people, debunking myths and engaging at public forums to advocate for protein sufficiency. They also need to play an important role in fact-checking of fake and incorrect information related to protein on social media. **More resources also need to be directed towards nutrition education as only a minor proportion of community nutrition research has been devoted to nutrition education and communication.**

DECODING INDIA'S PROTEIN PARADOX



Misinformation plays a significant role in incorrect choices made in the area of food and nutrition. The misinformation effect occurs when any new information a person receives about a subject works backwards in time to distort any past knowledge the person had on the subject. Nutrition misinformation spreads also because food facts are hard to obtain, and our increasing disconnection from food production. Misinformation effects in India get significantly complicated in their nature because of the inherent diversity of Indian states across the subcontinent. With beliefs on food and nutrition changing every thousand kilometres, the misinformation effect gets more pronounced.

Not only does nutritional misinformation confuse consumers about the right dietary advice to follow but acting on inaccurate and speculative data can result in detrimental health and economic consequences.

This study has identified the existence of a protein paradox in India; while mothers believe protein is important, protein is not adequately included in their daily diet²⁰. There is evidently a sense of confusion about protein which seems to indicate that misinformation and misattribution are the driving forces of the protein deficiency in Indian households. **The findings of this study reveal three main concerns –**

PROTEIN PAUCITY

While protein awareness exists, there is a low knowledge of protein sources which is causing poor protein consumption in Indian households

The findings of this study reveal that the lack of understanding about protein as a macronutrient is the main reason that leads to the elimination of protein in daily Indian diets. The study shows that 95% of Indian mothers recognise protein as a macronutrient and eight out of ten mothers believe protein is very

important. However very few mothers are aware of the accurate functionary facts of protein and only 3% of mothers surveyed really understand the prominent functions of protein or why one should consume it. As a result, despite being recognised as important, protein is not adequately prioritised in the daily diet.

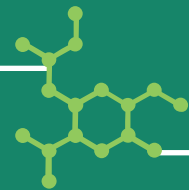
PRIMARY FUNCTIONS



Immunity



Muscle Building



Repairing Tissue

SECONDARY FUNCTIONS



Control Blood Sugar



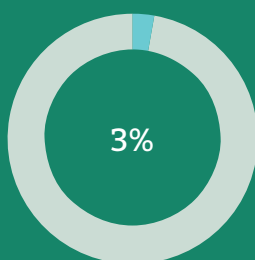
Energy



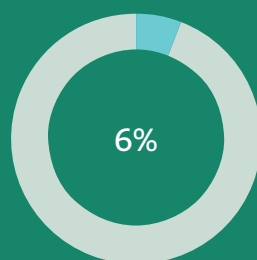
Fight Illness

Only 3% of the mothers were able to correctly identify the primary functions of protein such as immunity, muscle building and tissue repair. A majority, 58% of the mothers, used a mix of correct and incorrect terms, indicating a considerable lack of clarity regarding the functions and benefits of protein. Although 85% mothers largely agree that protein is an important part of one's diet, incorrect assumptions about protein clearly reflect the level of importance they assign to protein. The importance attributed to protein was the lowest at 79% for the group of mothers who were either not

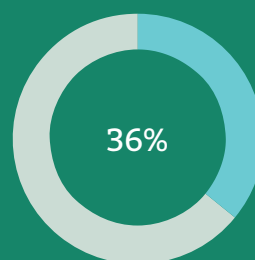
aware of the correct functions of protein or not aware about the nutrient at all. This statistic is indicative of how mothers perceive protein altogether. Thus, a mother who believes that protein leads to increased immunity but at the same time leads to weight gain would rather give another immunity-enhancing meal substitute more importance than protein. For the third group of mothers, the overall importance of protein in a meal is significantly low, either because they are entirely unaware of protein itself, or because they associate only 'incorrect' terms with it.



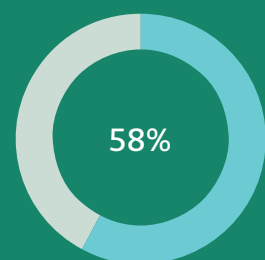
Correctly identified primary functions



Were unaware of about protein and its functions

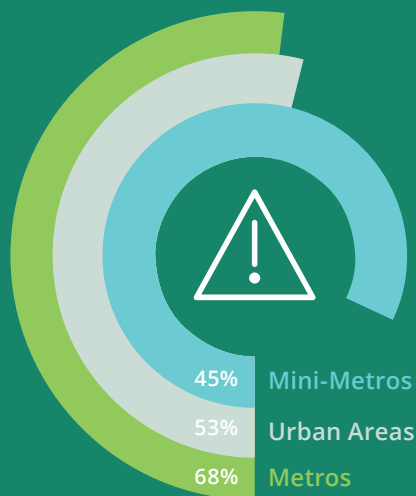


Correctly identified some functions



Identified some correct and incorrect terms

INCORRECT UNDERSTANDING OF PROTEIN BY REGION



82% of mothers in mini metros incorrectly identified functions of protein. Across the three different regions surveyed, mothers in the mini metros made the most errors in associating terms and functions with protein. This directly correlates with the fact that mothers in mini metros assigned the least level of importance to protein in planning their meals. The function of building immunity in the body, one of the most important roles performed by protein, was correctly identified by mothers mainly in the Metro cities and mothers in South India.

PROTEIN PSYCH

Mighty barriers of misinformation and myths are overshadowing protein consumption in Indian homes.

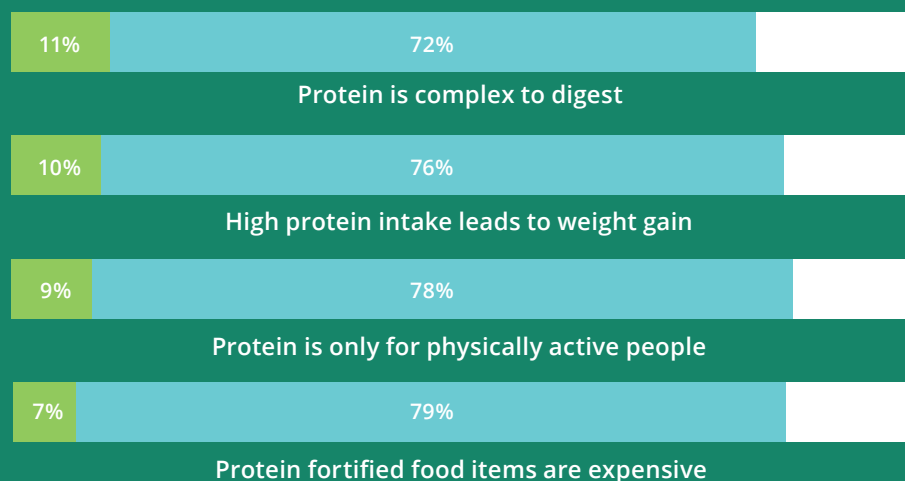
The survey identified several myths that occupy the consumer's mind regarding protein consumption, thus leading to protein-deficient food choices. Some of the most commonly believed myths about protein were related to

digestion, weight gain and its functions being limited to muscle or bodybuilding. The survey revealed that a large majority of mothers believe in these myths.



MYTHS BELIEVED ABOUT PROTEIN

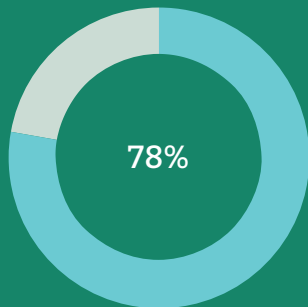
Disagree
Agree



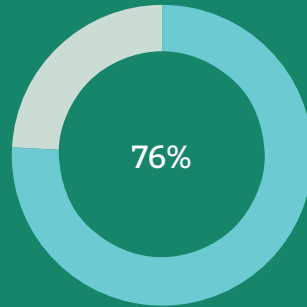
Note: Numbers don't total to 100 because the third category of 'as someone who neither agrees nor disagrees' has not been included

More vegetarian mothers believed that protein is complex to digest, which belief also influences the consumption patterns of protein, where among those mothers who believe protein is complex to digest,

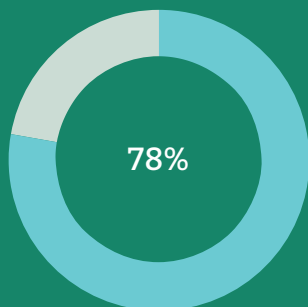
88% also believe that a protein rich diet should be eaten during breakfast rather than later in the day while 80% believe that protein should be avoided at night.



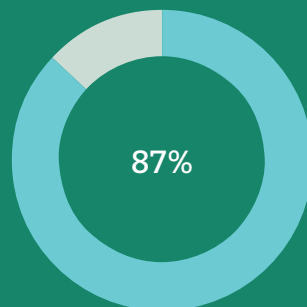
who believed that protein is complex to digest also agreed that lack of protein will not impact their overall health



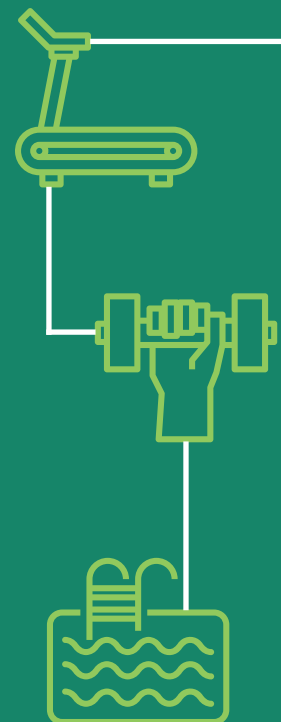
who believe protein is only for physical activity also agreed that lack of protein will not impact their overall health



who believe protein leads to weight gain also agreed that lack of protein will not impact their overall health



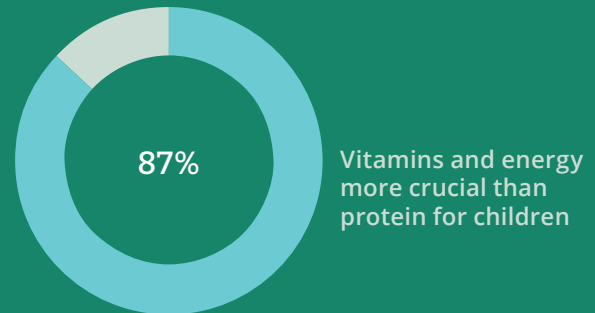
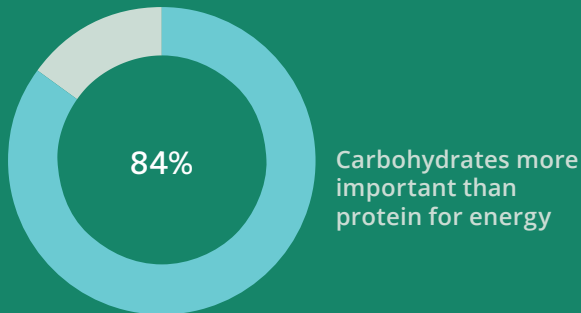
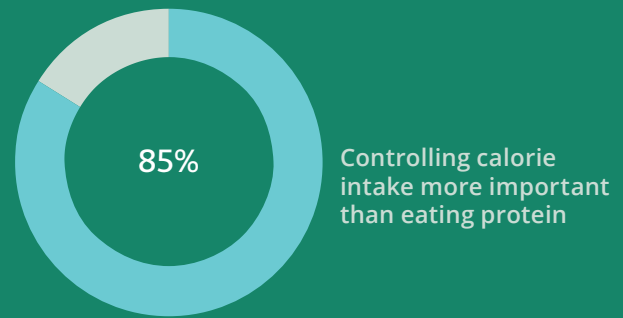
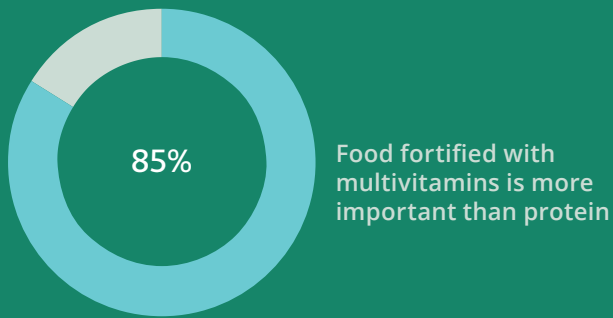
who believe protein is expensive also agreed that lack of protein will not impact their overall health



Mothers who follow an active lifestyle and exercised at least 2-3 times a week had a stronger belief in the myth that high protein intake can lead to weight gain.

Mothers who follow an active lifestyle and exercised atleast 2-3 times a week had a stronger belief in the myth that high protein intake can lead to weight gain. This opinion is influencing the substitution of essential protein sources in the daily diet. Among those who believe that high protein intake would lead to weight gain, 85% believe that

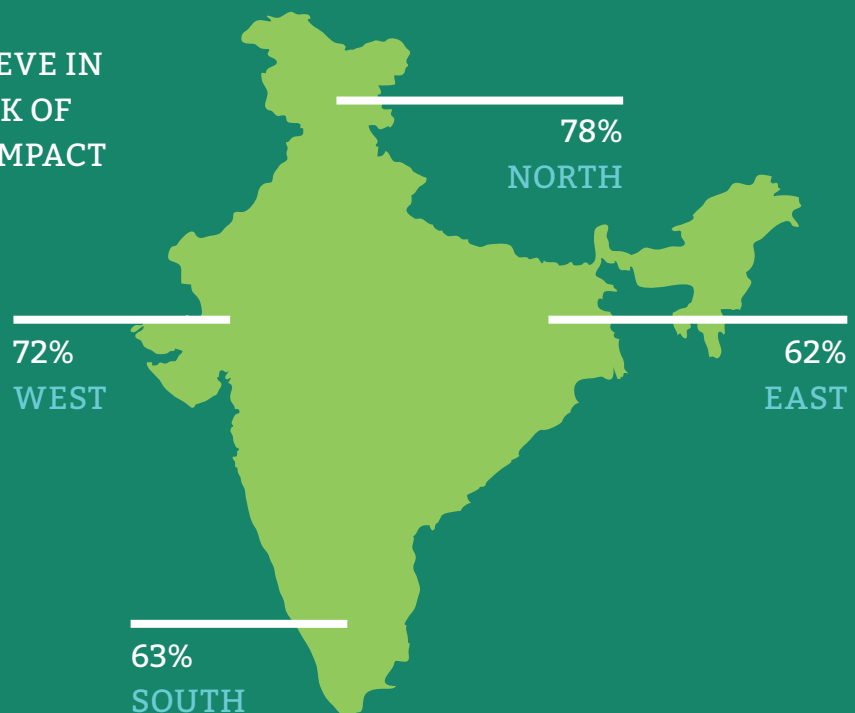
they need to control calorie intake in their diets rather than including proteins and 84% agreed that it is important to include carbohydrates rather than proteins in the diets for energy throughout the day. About 79% of mothers in mini metros believed in this myth, the highest amongst the three regions.



A total of 78% mothers believe that people need protein only to boost or regain energy after doing a heavy physical activity. About 78% of mothers in mini metros believed in this myth, the highest amongst the three regions. Particularly this included 86% of the mothers surveyed in Ahmedabad, 60% of mothers surveyed in Bhubaneshwar and 87% of the mothers surveyed in

Bangalore and 55% of mothers surveyed in Hyderabad. The overall perception of protein is of something that is unrelated to daily nutrition requirements of individuals and children. It is largely viewed as a medium for someone looking to enhance their muscle growth and stamina; and not as something that is critical for overall wellbeing.

MOTHERS WHO BELIEVE IN THE MYTH THAT LACK OF PROTEIN DOES NOT IMPACT OVERALL HEALTH



PROTEIN PINCH

Indian households reduce protein intake to a pinch amongst basic staples, as most protein sources remain unidentifiable.

The need for protein in Indian households does not convert into usage behavior. Most Indian mothers believe that the typical Indian diet they have followed over the years is enough for a healthy life. While 83% of mothers agreed that protein can be obtained from homemade food, **81% believed that the regular**

Indian diet consisting of roti, dal, rice is enough for daily protein needs.

As a result, protein-rich foods are overshadowed by the consumption of daily staples of rice and wheat since the average Indian diet consists of limited sources of proteins, and more of carbohydrates and fats²¹.



8 out of 10 mothers

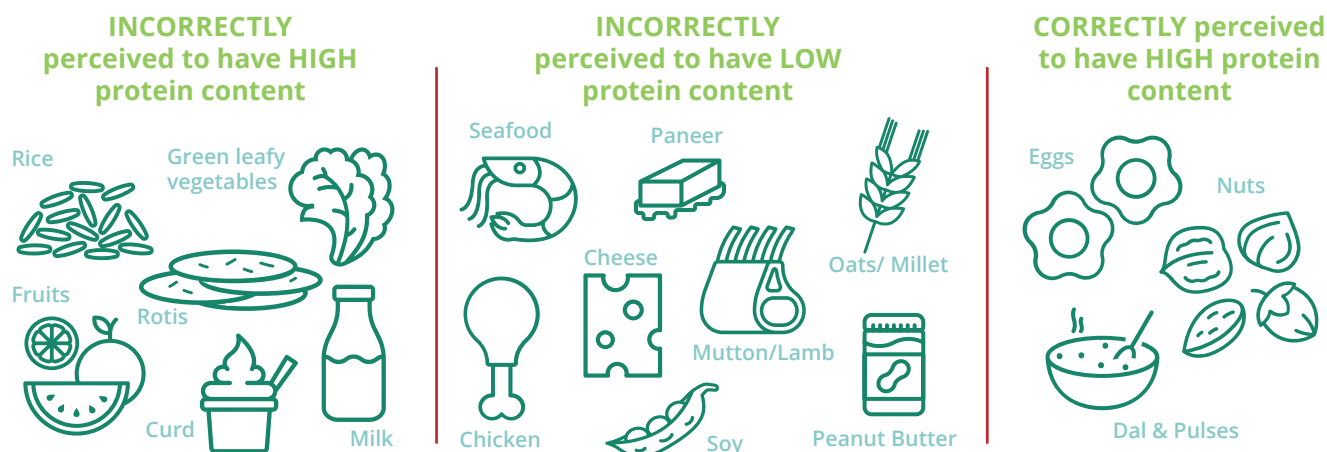
believe that the regular Indian diet fulfils our daily protein requirements

Misinformation leads to low protein consumption

Only 3 of 11 protein rich products were correctly identified by Indian mothers

Majority of Indian mothers were able to accurately identify protein levels of only 27% of protein-rich products (3 out of 11 items in the survey). They overestimated the protein content in common food items like milk, green leafy vegetables,

fruits, roti and curd which are low in their protein content. These findings indicate that the major source of protein in the diet is cereal alone which may not be adequate.



In order to understand the knowledge of protein content, multiple staple and traditional Indian household food items were laid out during the study. The foods that were correctly identified by Indian mothers in the survey as being high in protein were dal and pulses, eggs and nuts like almonds. However, extremely important protein sources, both animal-based like sea food, chicken, mutton and lamb, as well as plant-based such as oats, millets, soy, cheese, peanut butter and paneer are all perceived to contain low protein content.

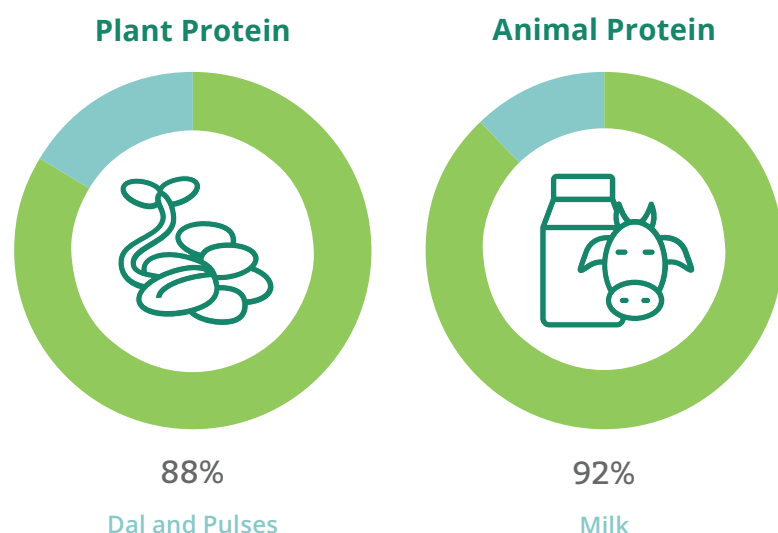
Apart from the incorrect perception, there are also several other factors at play that create barriers to the consumption of rich protein sources such as age-old beliefs, customs and traditions, myths passed down through generations, etc. Thus, it becomes increasingly important to not only raise awareness but also shift the focus to rich vegetarian sources of protein such as oats, soya and paneer which were also overlooked by mothers in the survey.

Dairy Products, Dal & Pulses are the Primary Source of Protein Among Indians

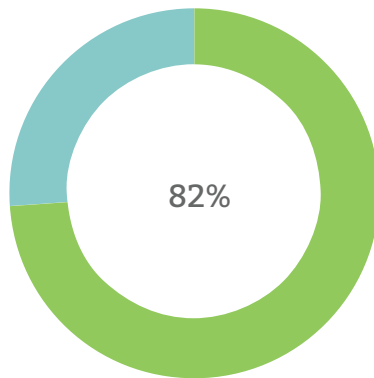
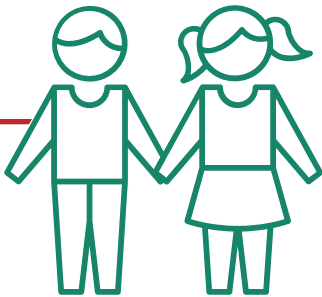
The results of the survey are worrying because incorrect perceptions about protein are driving diet planning and consumption behaviour. The survey showed that the respondents consumed dal and pulses as their main sources of plant protein and milk as their main source of animal protein. From the animal-based sources, 92% people consume milk daily and 48% consume egg. 34% consume other dairy products (cheese, paneer, butter, buttermilk, curd), 25% consume sea food and 24% consume

chicken. Dal and pulses, particularly perceived as being heavy in its protein content, actually provides only one-tenth of the average individual's protein requirements²². Thus it is clear that daily consumption habits undervalue the actual sources of protein in both plant-based and animal-based diets. Since these items are frequently consumed as protein sources, Indian mothers are clearly providing protein deficient diets at their homes.

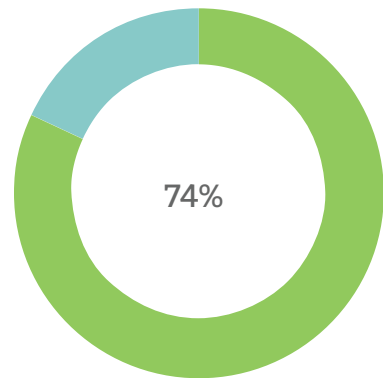
PRIMARY SOURCES OF PROTEIN IN INDIAN HOUSEHOLDS



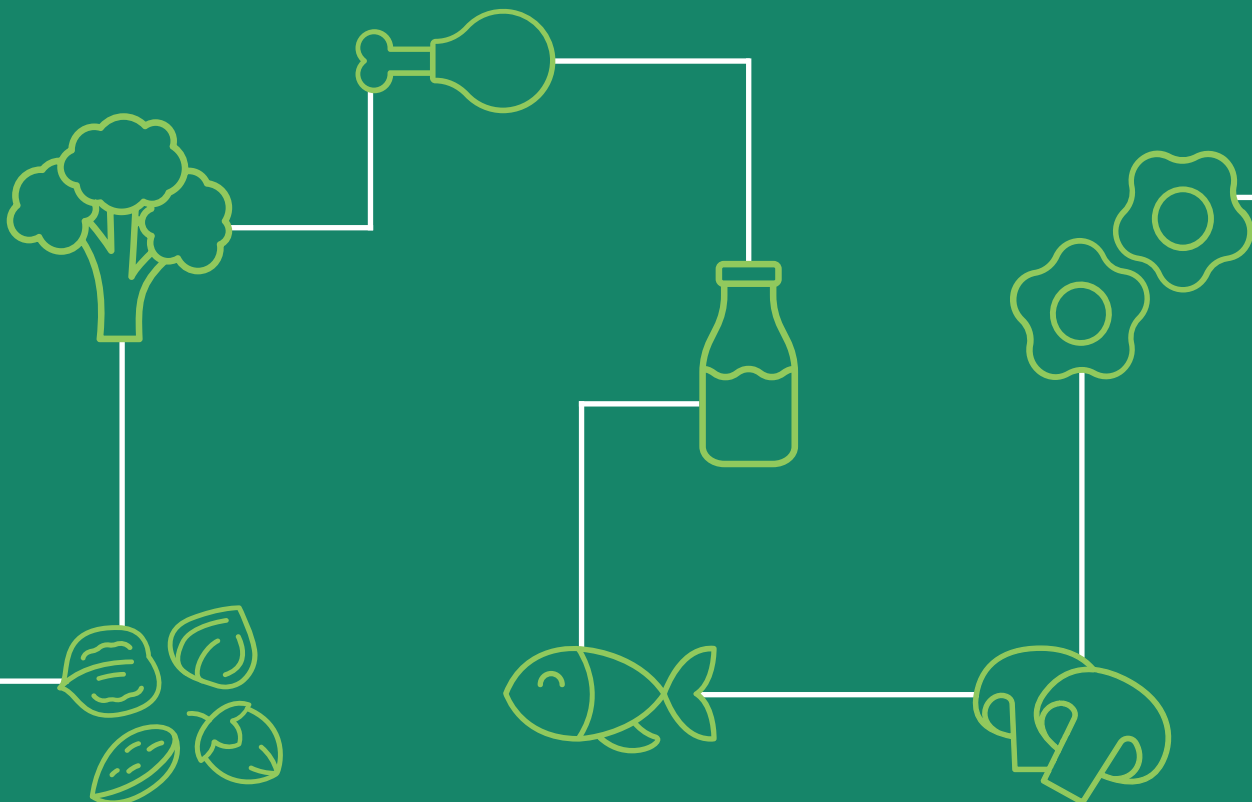
Children are also being provided protein-deficient diets



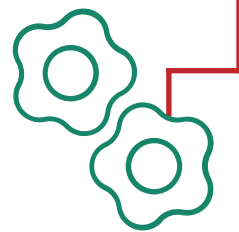
I should focus more on vitamin and energy than proteins for my child/children



My child's/children's diet is currently low on protein

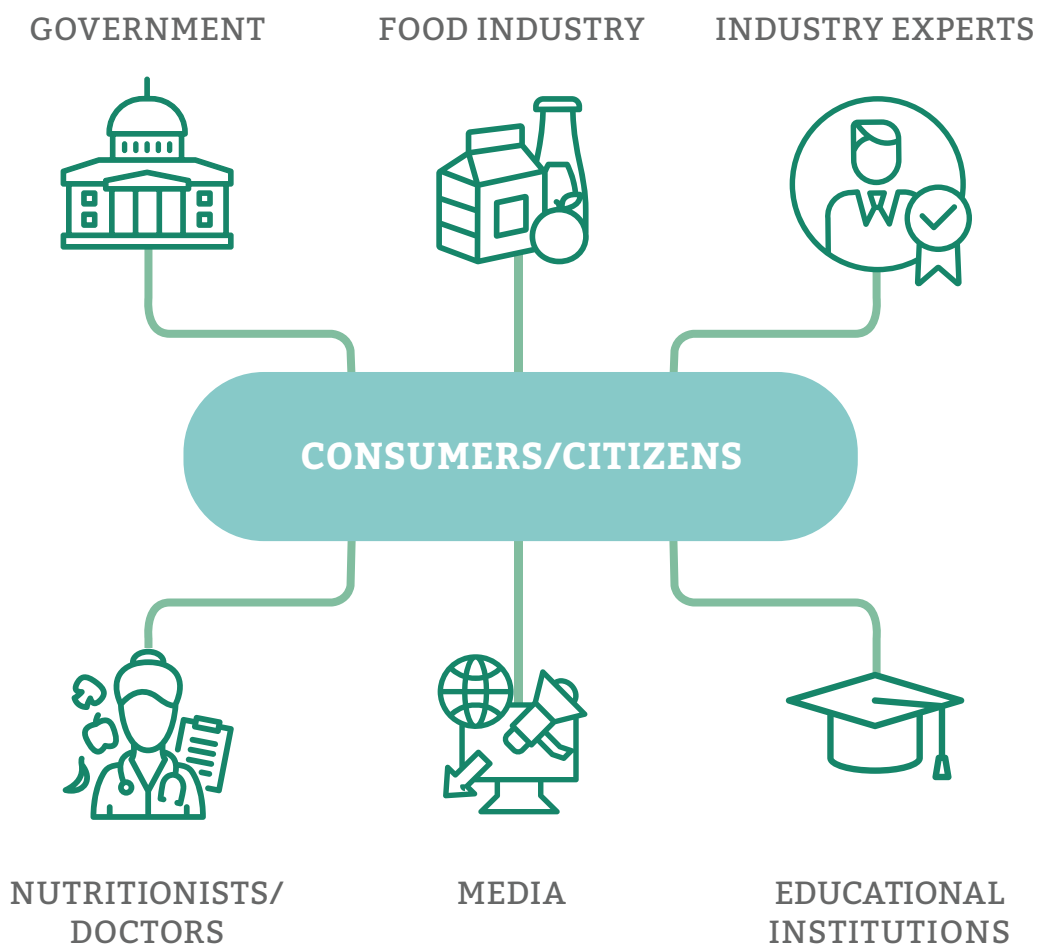


THE WAY FORWARD



Resolving a paradox requires recognition. With the Protein Paradox study, we've identified the inconsistencies and absurdities that make Indian households undermine protein, hence the next steps are to create a positive protein phenomenon that can resolve the paradoxes we face.

The Right To Protein initiative calls out to all key stakeholders to come together and educate the people of India on the importance of proteins, champion its sufficiency and trigger a long-term behaviour change among individuals and communities at all levels. However, this can only be achieved through the participation of the various stakeholders in the ecosystem. So, we asked over 500 such health and nutrition experts on their role to take India towards protein sufficiency and here are some of the key recommendations:



The Government

With its vast reach and resources, the Indian Government is one of the most important drivers of nutritional well-being of the Indian population. Some of key recommendations include –

Mass public awareness

The Central Government runs several schemes on nutrition, all of which are largely aimed at fulfilling the nutrition requirements, including protein, of certain vulnerable sections and target groups such as young children, adolescent girls, pregnant and lactating mothers, etc. However, there is no programme in India that focuses solely on driving protein awareness and therefore, adequate protein consumption in the daily diets of the overall Indian society. In our survey with nutritionists, doctors,

dieticians and health experts, 53% agreed that the Government and policymakers need to increase and support nutritional conversations and awareness campaigns for public health.

The Government is well-placed to fill this gap by initiating a large-scale public health awareness campaign to increase overall awareness and nudge behavioural change to mitigate protein deficiencies of Indian households today.



Saleema Razvi

Research Economist at Copenhagen Consensus Centre



There [is] clear evidence [that] points to the continual persistence of protein hunger or deficiency among large sections of the population. The approach to tackling malnutrition should therefore include focusing on the lack of protein rather than just the current emphasis on micronutrient malnutrition. Currently, national subsidy programmes are biased towards cereals, offering only limited quality protein. It is important that India encourages and fosters pertinent levels of production and consumption of high-quality protein rich foods so as to supplement the country's attempts to improve diet quality and fight stubbornly high levels of undernutrition.



Change in nutrition policy

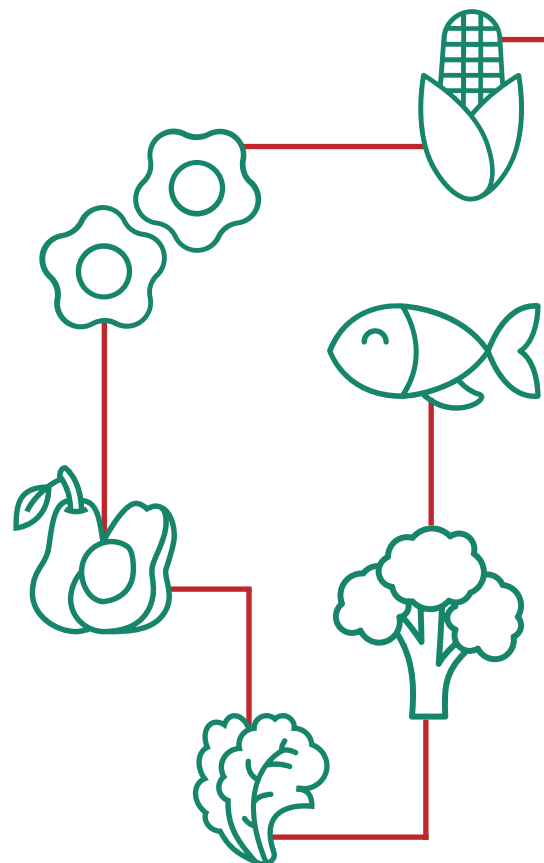
The Indian Government is also the controller of one of the largest food stocks in the world, through the public distribution system (PDS) which is a powerful influencer of how households at the lower end of the income pyramid choose what they eat. However, the high focus on cereals is concerning, and though the PDS has provisions to distribute pulses, it is not being implemented across states²³.

Furthermore, the National Food Security Act is still cereal-centric, with no mention of pulses. India's nutrition policy has served well in the quest for calorie sufficiency, there is now an urgent need to pivot from quantity of calories to quality of calories. Some of the measures that can be adopted by the Indian Government include –

- Need to emphasise on protein consumption in nutritional supplementation schemes currently run by the Government. Nearly 40% of experts surveyed also agreed with this measure. For example, the Mid-day Meal Programme in schools is required to include an egg for protein nutrition, however this requirement is not being uniformly implemented by schools across states.
- The Indian Government can also consider placing a greater emphasis on procurement and supply of protein rich foods such as pulses in the Public Distribution system at

subsidised rates to increase protein consumption amongst the rural and economically weaker sections of society²⁴. Over 20% of respondents also recommend subsidising basic protein-rich foods in India.

- A policy that promotes the production and distribution of pulses will also go a long way in ensuring protein sufficiency in India²⁵. Some Central Government agencies are already working on finding ways to ensure Indians receive higher levels of protein in their daily diets such as the Indian Council of Agricultural Research (ICAR) has developed a new variety of wheat with high protein content²⁶. Such efforts must be encouraged if India is to tackle protein deficiency en masse.



CENTRAL GOVERNMENT SCHEMES ENCOURAGING PROTEIN CONSUMPTION

Integrated Child
Development
Services (ICDS)
Scheme²⁷



The Rajiv Gandhi
Scheme for
Empowerment of
Adolescent Girls –
SABLA²⁹



The Mid-day
Meal Scheme²⁸



National Action
Plan for Egg and
Poultry – 2022³⁰



Dr. Shoba Suri

Ph.D Nutrition & Physiology and Senior Fellow at
Observer Research Foundation (ORF)

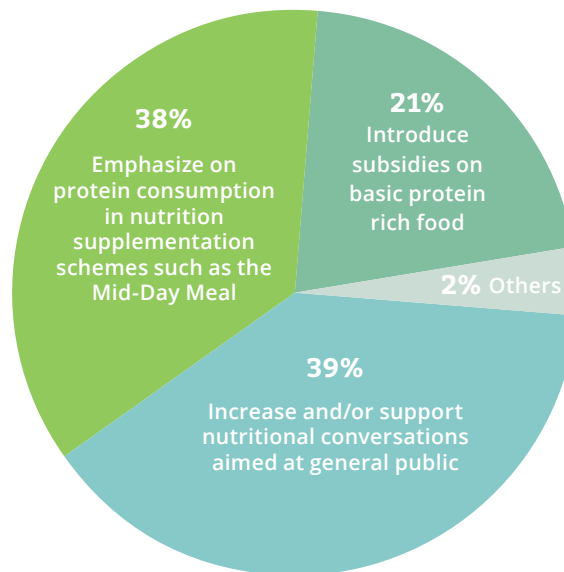


India's nutrition programmes and efforts as a part of Public Distribution System (PDS) provides for subsidized food grains to beneficiaries under the National Food Security Act, which include rice, wheat and millets. There are no protein foods being provided under most of these programmes – possibly due to reasons that include availability, affordability and/or awareness on food groups and dietary adequacy and frequency. NITI Aayog has been pushing for protein rich foods both plant and animal protein to be included in the public distribution system, evidenced in the government's relief package for poor and vulnerable families in the wake of the pandemic. However, there is an urgent need to create awareness on what to eat, how much to eat, importance of macronutrients and easily available sources of protein. There is a need to advocate for food frequency and food groups to understand dietary adequacy. There should be communication campaigns to provide the right information on right quality of protein for better muscle strength. This can be done at the community level through the community health workers (AWW & ASHA) who counsel mothers on nutrition and health and through demonstrations during the Village Health and Nutrition Day on how to enrich food with macro and micronutrients. As a policy the PDS should provide protein rich foods at subsidized rates to make it more affordable and available. It has been seen that states (Andhra Pradesh and Chhattisgarh) that providing pulses in PDS lead to better protein intake by households.



INDUSTRY STAKEHOLDERS RECOMMEND

How can Governments address challenges of protein deficiency in India?



Food Industry

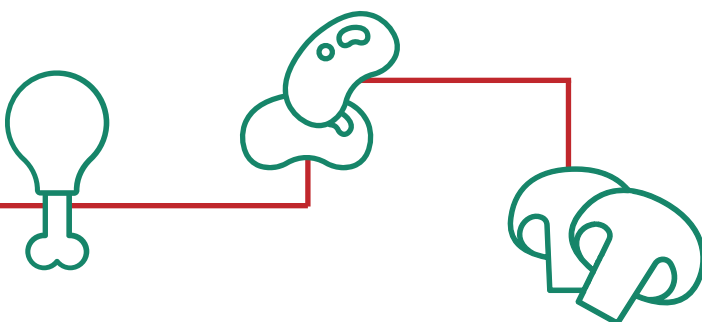
With increasingly urbanized lifestyles and high dependence on packaged and pre-processed foods, the food industry can play an important role in tackling nutritional deficiencies and encourage healthy lifestyles.

Protein fortification

The key recommendation here is for protein producers to not only help provide protein-fortified foods but also focus on protein-rich feeds, in case of animal protein. Protein-fortified foods and protein supplements may be one of the answers to help bridge protein deficient diets and food businesses should commit to reformulating their products. However, more R&D and awareness might be needed to help make protein-fortified foods more affordable³¹.

Protein affordability

While more than 70% of Indians are non-vegetarian or flexitarians, quantity and frequency of meat consumption is scarce both, due to affordability and cultural nuances. Thus, for India, milk, pulses and plant proteins are a logical primary source of high-quality protein because they are commonly acceptable in local diets. However, the demand for pulses far exceeds their production in India^{32,33}. It is hence crucial that industry works together to make more sources of plant-based protein and animal-based protein more affordable, accessible and encourage the production and distribution in India.



Protein accessibility

There is also an urgent need to focus on other plant-based alternatives of protein like millets, quinoa, paneer and tofu as well as affordable options of protein-fortified foods. There is also an urgent need for industry to promote other plant-based alternatives of protein. Millets are nutritionally superior to major cereals (wheat and rice) for carbohydrate and energy and serve as a good source of protein and micronutrients³⁴. Oats and quinoa are other grains which are good sources of protein. Amongst the pulses, soya beans have the highest quantity of protein (52g per

100g)³⁵. Even in dairy, paneer, cheese and tofu are richer sources of protein as compared to milk and yogurt³⁶.

Protein Information

The food industry also has a responsibility to provide better nutritional information to consumers and make investments in healthy food as responsible food firms. More companies also need to participate in FSSAI's Eat Right Movement³⁷ and increase their rankings in The Access to Nutrition India Spotlight Index³⁸ to demonstrate their commitment to national nutritional challenges.



Dr. Suresh Itapu

Nutraceutical expert and Director, NutriTech India



"As the Indian population majorly depends on vegetarian sources for protein, plant-based sources like soybean can be promoted as major source of the macronutrient."

Further elaborating on the example of soybean as a viable protein source, he claims the affordability of the ingredient can efficiently bridge both protein quality and quantity gaps. Furthermore, he believes promoting a protein-rich ingredient like soy in feeding programs can be beneficial.

"India runs worlds' largest feeding programs (ICDS and MDM) promoting soy protein products in these programs will go a long way in alleviating malnutrition."



Educational Institutions

Children can play an important role in guiding household consumption by demanding food habits that they have been exposed to at school or in the media. Some of key means to do so include –

A System to Improve Nutrition

Protein information communication programmes in schools and colleges can be strong ways to inculcate awareness and dispel myths at an early age in children. Several studies have shown the success of milk awareness and distribution programs in schools and similar initiatives can be taken up for protein awareness. A higher focus on the importance of protein consumption and the role of protein in the body is required in school syllabus and textbooks³⁹. Educational institutions can initiate healthy eating campaigns for students and their parents and encourage parents to include protein sources in the daily diets.

Updating School Food Policies

In schools where a mid-day meal is provided to children, the protein constituent of the meal must be assessed and enforced. But the absence of food policies in educational institutions has resulted in supply of unhealthy and unhygienic food in canteens and heavy marketing of nutrient-poor and unhealthy food at institutions⁴⁰. The active participation of parents and teachers in canteen decisions and dedicated sessions on the role of protein and other nutrients for well-being is a must to inculcate the right eating choices at a young age

Media

Media has been used as an effective tool for imparting nutrition education and promoting the consumption of certain micro and macro nutrients. A concerted media campaign is required for spreading awareness about the myths of protein and expanding the acceptability of protein consumption among a target user group, such as mothers and households at large. The key recommendation for media as a stakeholder in resolving the Protein Paradox is to fight the misinformation effect :

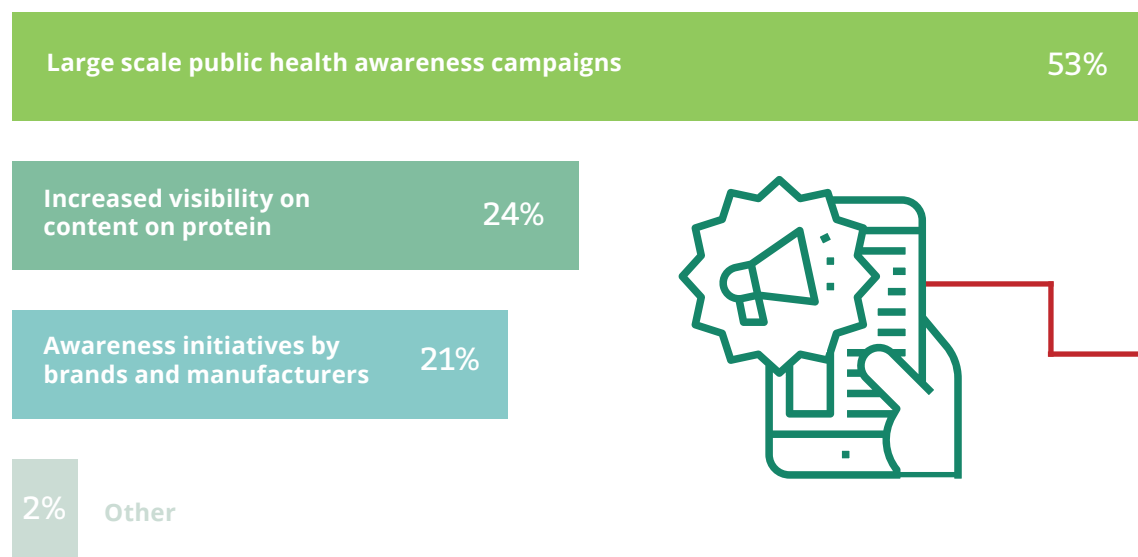
- For this it is essential that various stakeholders join hands with the media to increase visibility about accurate content on protein consumption and initiate informational and behavioural campaigns through social media, surveys, etc.
- It is crucial that media campaigns are designed in a long-term sustainable manner to engage with consumers rather than one-time initiatives which have minimal impact on dietary habits. Campaigns such as the Iodine Deficiency

Disorders (IDD) control programme in India are well-known as a public health success story, with 92 per cent of the population consuming iodized salt today⁴¹. It was a result of a strong partnership between government agencies, academic institutions, salt industry, development agencies and civil society backed by sustained scientific, long-term advocacy through the media.

- Media campaigns must be tailored for different population segments to address the diversity of Indian citizens. Majority industry stakeholders surveyed by us also feel that apart from the benefits of protein, it is also important to communicate the health hazards of protein deficiency.

EXPERT SPEAK

What is needed to increase awareness and knowledge about protein?



Nutritionists, Dieticians and health experts

The role of dieticians, nutritionists, healthcare and wellness experts is paramount in driving wellness and fitness in India, both through their influence on consumers at public forums as well as in their advocacy as experts to the government and industry bodies. More than half of the surveyed believe that such professionals have an important role in sensitising people about the importance of protein and recommending protein rich food in diets, debunking myths and engaging in public advocacy at large. This includes informed thought leadership by:

Encouraging nutrition research

Nutrition research capacity in India, especially in protein, lacks world-class rigour, quality and quantity⁴².

By engaging globally acclaimed experts in nutrition epidemiology, research methods and policy processes to build capacity in India and generate more research studies on India specific nutrition findings.

newer communication approaches and media for promoting nutrition, there is a dearth of published literature in India. Nutritionists and dieticians need to engage in dynamic and proactive, contextualised communication to encourage consumers to adopt healthy eating habits and lifestyles.

Encourage nutrition communication

Only a minor proportion of community nutrition research has been devoted to nutrition education and communication. Although there are scattered efforts in experimenting with

Fighting fake information

Nutritionists and dieticians also need to play an important role in fact-checking of fake and incorrect information related to protein on social media.



Nmami Agarwal

**Nutritionist and wellness expert,
CEO & Founder, Nmami Life**

She stresses on dual action by both the government and the nutritionists' community for tangible-long term change.



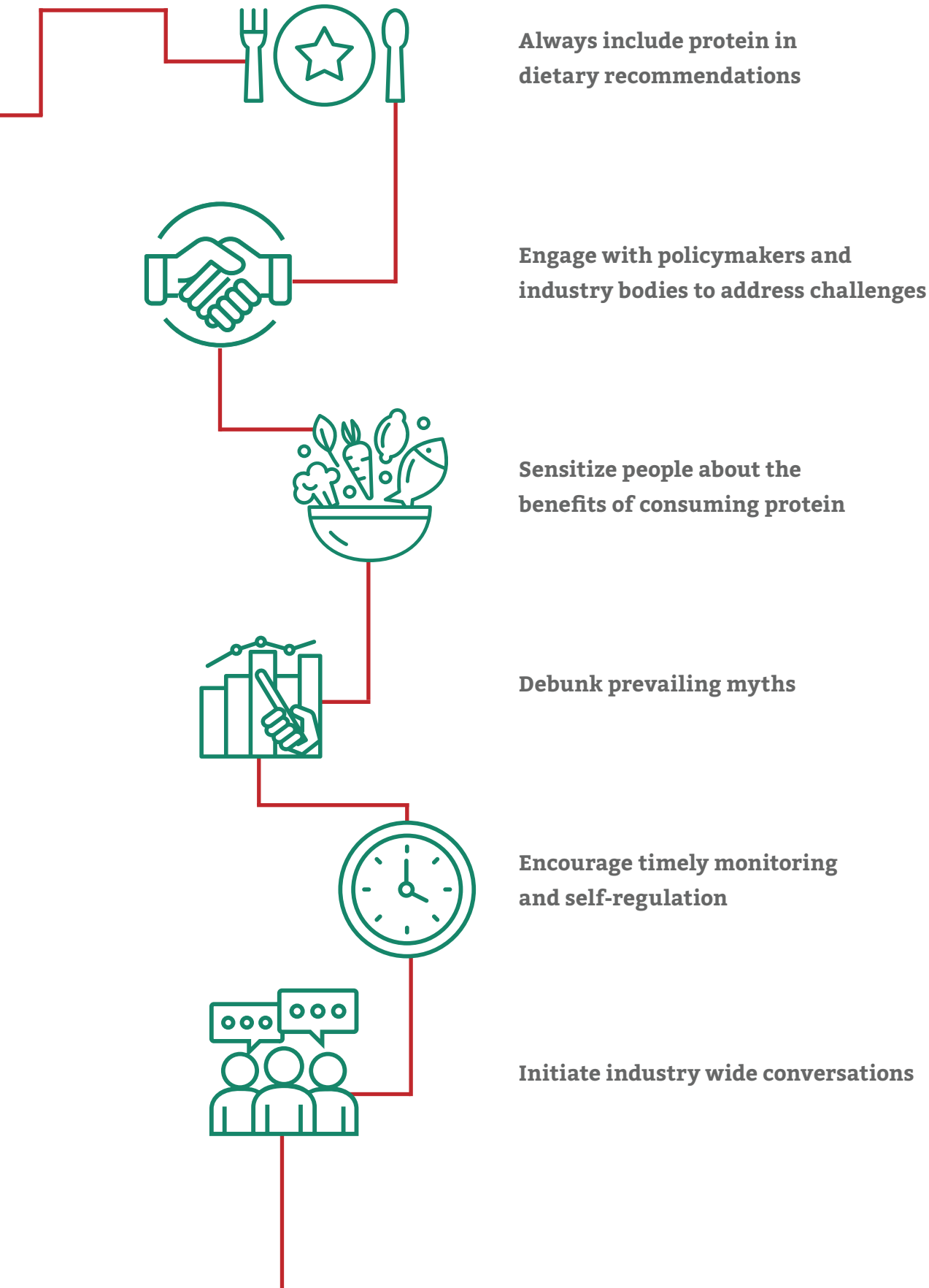
The biggest hurdle is lack of awareness about the importance of dietary protein. The major cause of concern is that most people don't think protein is essential component of diet, and unlike calcium or iron deficiency, protein deficiency is still not taken very seriously [...] There is a need of mass-awareness through government led campaigns making the general population aware about importance of protein, its sources, requirements and health implications. Health care practitioners especially dieticians and nutritionists can raise awareness on an individual basis or conduct workshops or seminars to bridge the protein deficiency gap.



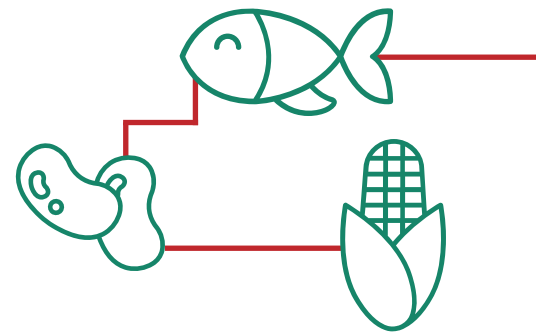
EXPERT SPEAK

What steps must industry professionals (nutritionists, healthcare & wellness experts, dietitians, etc.) take to help people increase their awareness about protein consumption and gradually help increase protein intake?

56% of experts agree that industry professionals should:



ABOUT US



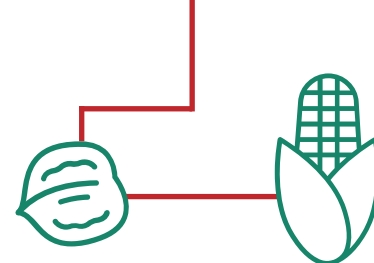
About the 'Right To Protein' Initiative

Right To Protein is India's first communications and consumer advocacy initiative supported by several like-minded Indians, individuals, academicians, professionals and institutions and is also supported globally. In its initial phase, the initiative is open for all Indians who would like to join and/ or contribute to the initiative in any capacity including providing knowledge, technical support or as promotion partners. Further, this initiative will develop an ecosystem of professionals to drive protein awareness and debunk myths and misconceptions about protein as a critical macro-nutrient for human health. The ecosystem will also aim to improve quality and consistency of different types proteins consumed in India and thereby lead to greater protein consumption by livestock, poultry and pisciculture/aquaculture (fish & shrimp farming). For more information, visit the www.righttoprotein.com, reach out to us @righttoprotein on Twitter, Facebook, and Instagram or contact us at: contactus@righttoprotein.com

About Nielsen

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ANNEXURE



- 1 These 9 amino acids are known as essential amino acids and include histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine
- 2 <https://www.omicsonline.org/open-access/the-effect-of-nutritional-elements-on-the-immune-system-2165-7904.1000152.pdf>
- 3 <https://academic.oup.com/ajcn/article-abstract/22/12/1634/4716671>
- 4 <https://righttoprotein.com/hypoproteinemia-definition-causes-symptoms-treatment-and-prevention/>
- 5 Zubin Grover, Looi C. Ee (2009) Protein Energy Malnutrition, Pediatrics, October 2009, Volume 56, Issue 5, Pages 1055–1068
- 6 Fourth Round of the National Health and Family Survey (NFHS-4), 2015-16
- 7 <https://www.wri.org/resources/charts-graphs/people-eating-more-protein-wealthy-regions>
- 8 Food and Nutrition Security Analysis, India, 2019, Ministry of Statistics and Programme Implementation and The World Food Programme, available at http://www.mospi.gov.in/sites/default/files/publication_reports/document%281%29.pdf.
- 9 Conducted in 7 Indian cities
- 10 The National Statistical Survey Organisation Rounds, published by Ministry of Statistics and Programme Implementation, Government of India
- 11 <https://www.ncbi.nlm.nih.gov/pubmed/23107548>
- 12 Sumedha Minocha, Tinku Thomas, Anura V Kurpad, Dietary Protein and the Health–Nutrition–Agriculture Connection in India, The Journal of Nutrition, Volume 147, Issue 7, July 2017, Pages 1243–1250, available at <https://academic.oup.com/jn/article/147/7/1243/4743658>
- 13 <https://www.indiatoday.in/education-today/gk-current-affairs/story/body-eats-muscles-when-not-given-enough-proteins-list-of-effects-and-solutions-1402050-2018-12-04>
- 14 Recommendations published by a three-year commission involving a global team of experts available at <https://eatforum.org/eat-lancet-commission/eat-lancet-commission-summary-report/>
- 15 Statistical numbers acquired from the survey results have been rounded off to the nearest whole number
- 16 Regions have been categorized into metros, mini-metros and rest of urban based on the last official census conducted by the Government of India in 2011
- 17 <https://scroll.in/article/961967/beyond-food-rations-six-ways-india-can-ensure-nutrition-security-for-its-most-vulnerable-people>
- 18 Sumedha Minocha, Tinku Thomas, Anura V Kurpad, Dietary Protein and the Health–Nutrition–Agriculture Connection in India, The Journal of Nutrition, Volume 147, Issue 7, July 2017, Pages 1243–1250 available at <https://academic.oup.com/jn/article/147/7/1243/4743658>
- 19 Ibid.
- 20 Inference based on survey findings and recent reports - Consumption Expenditure Survey conducted by the National Sample Survey Office (NSSO) in 2011–12 & 2019 EAT-Lancet Commission report

- 21 <https://www.livemint.com/science/health/indians-are-a-long-way-away-from-an-ideal-diet-1548618112928.html>
- 22 <https://timesofindia.indiatimes.com/life-style/health-fitness/photo-stories/dear-vegetarians-your-dal-is-not-providing-you-enough-proteins/photostory/64960891.cms?picid=64960953>
- 23 <https://scroll.in/article/961967/beyond-food-rations-six-ways-india-can-ensure-nutrition-security-for-its-most-vulnerable-people>
- 24 <https://economictimes.indiatimes.com/news/economy/policy/protein-push-niti-aayog-mulls-pds-supply-of-eggs-fish-meat/articleshow/72861907.cms?from=mdr>
- 25 Sumedha Minocha, Tinku Thomas, Anura V Kurpad, Dietary Protein and the Health–Nutrition–Agriculture Connection in India, The Journal of Nutrition, Volume 147, Issue 7, July 2017, Pages 1243–1250 available at <https://academic.oup.com/jn/article/147/7/1243/4743658>
- 26 <http://agrospectrumindia.com/news/54/95/icar-develops-protein-rich-wheat-variety.html>
- 27 <https://icds-wcd.nic.in/icds.aspx>
- 28 http://mdm.nic.in/mdm_website/Files/MDM_Rules/MDM-Rules-Without_DO_Letters/MDMRules2015.pdf
- 29 https://wcd.nic.in/sites/default/files/1-SABLAScheme_0.pdf
- 30 <http://dahd.nic.in/sites/default/files/Seeking%20Comments%20on%20National%20Action%20Plan-%20Poultry-%202022%20by%2012-12-2017.pdf>
- 31 <https://www.livemint.com/industry/infrastructure/opinion-food-companies-are-watchful-of-adding-nutrition-11583325893416.html>
- 32 Sumedha Minocha, Tinku Thomas, Anura V Kurpad, Dietary Protein and the Health–Nutrition–Agriculture Connection in India, The Journal of Nutrition, Volume 147, Issue 7, July 2017, Pages 1243–1250 available at <https://academic.oup.com/jn/article/147/7/1243/4743658>
- 33 <https://www.livemint.com/Opinion/GzUIDPQXzktVDBEiE2ZPfl/Per-capita-nutrition-supply-in-India-among-the-lowest-in-the.html>
- 34 Indian Institute of Millet Research, <https://www.thehindubusinessline.com/economy/agri-business/strong-immunity-is-a-key-weapon-in-the-fight-against-covid-19/article31453126.ece#>
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