

GUIDELINE 15: Minimize the consumption of high fat, sugar, salt (HFSS) and ultra-processed (UPFs)

A. Ultra Processed Foods (UPF) are defined for the first time.

The concept of UPF and the food categorization system as given in Guideline 15 is based on the extent of the processing and use of additives in foods. All products with additives of any kind – preservatives, homogenizers, colouring agents, artificial colours, bleaches, improvers, antimicrobials, and others, are categorized as Group C/ UPF products. Except few products such as milk & plain yogurt, soluble coffee powders & sweetened condensed milk etc., all other processed products will be categorized as Group C products (pg. 97-98).

We would like to highlight that there is no globally accepted common definition of ultra-processed food. Multiple definitions exist mainly on the extent of processing. Such definitions are not even endorsed by any regulatory body of the world. Many published scientific literatures oppose such a classification which is based on processing and use of additives and there is no correlation of UPF, and processing/additives is not even established very well. Too many concepts have been linked in the same definition related to food processing and additives demonizing the Processed Foods industry. Researchers from the University of Surrey and the European Food Information Council looked at over 100 scientific papers on processing classifications and concluded that most classification systems are not aligned with existing evidence on nutrition and food processing. (Ref- 13 Sadler, C. R., Grassby, T., Hart, K., Raats, M., Sokolović, M., & Timotijevic, L. (2021). Processed food classification: Conceptualisation and challenges. Trends in Food Science & Technology, 112, 149–162. Processed food classification: Conceptualisation and challenges (chilealimentos.com))

B. Linking processing with adverse health effects and NCDs

The guideline 15 states that consumption of UPF is associated with adverse health effects. Several scientific bodies like Nordics Nutrition Recommendations Committee and the UK Scientific Advisory Committee on Nutrition have also concluded that current evidence on UPF needs to be treated with caution. Food additives are not linked to Non-communicable diseases and hence concept of adding it to the definition of UPF is not justified. Regulatory Authorities globally review food additives based on new safety and consumption data periodically.

The available evidence directly linking food processing with NCDs, and human health is weak. Also, the evidence is ignoring the importance of a balanced diet, nutritional composition of a product alongside frequency of consumption, portion size, and lifestyle and the totality of evidence and systematic review to establish processing to NCDs is even lacking. More debate is needed before we publish for processing changes based on this definition. Indian diet-based studies where context of this conception is also lacking. Hence, it is not justified to link these concepts together and additionally the literature available on concept of UPF lacks scientific rigour, does not prove causality, and should therefore not be used to shape public policy or dietary recommendations.

C. Decoupling of Nutrition Profile and Processing of Food

1. There is an attempt to link ‘Processing of food’ to nutritional profile of the food and food products. These are 2 different concepts and is a huge disconnect globally on UPF definition due to this. There is no direct correlation with the processing of food and its Nutritional profile. Processing is not a determinant of the healthiness of a product Nutrition quality is. Hence there is a need to decouple processing from nutritional profile of product. There are examples of food products where the processing is high, and their nutritional profile is also high and vice versa where the processing is low, but the nutritional profile is low. eg. plant-based protein foods are very high nutritional value while milk cream may not be high saturated fat. Processed foods may not always be nutritionally poor. They contain products with nutritional profiles ranging from healthier to less healthy. In fact, Hess et al, 2023 in a proof-of-concept study have concluded that it is possible to design a day’s menu that aligns with recommendations for a healthy and balanced dietary pattern with > 80% kcal coming from UPF, and such a diet can have a high diet quality score and

contains adequate amounts of most macro- and micronutrients. (Dietary Guidelines Meet NOVA: Developing a Menu for A Healthy Dietary Pattern Using Ultra-Processed Foods (sciencedirectassets.com). From the perspective of food science and technology, the degree of processing and the nutritional value of a product do not have a linear relationship, and these concepts need to be dissociated (Sadler, C.R. et al. (2022) “‘Even We Are Confused’”: A Thematic Analysis of Professionals’ Perceptions of Processed Foods and Challenges for Communication’, *Frontiers in Nutrition*, 9. Available at: <https://www.frontiersin.org/articles/10.3389/fnut.2022.826162>)

A team of USDA scientists led a study that demonstrates the possibility to build a healthy diet with 91% of the calories coming from UPF (as classified using the NOVA system) while still following the recommendations from the 2020-2025 Dietary Guidelines for Americans (Ref- 18 Hess, J.M. et al. (2023) ‘Dietary Guidelines Meet NOVA: Developing a Menu for A Healthy Dietary Pattern Using Ultra-Processed Foods’, *The Journal of Nutrition* [Preprint]. <https://doi.org/10.1016/j.tjnut.2023.06.028>.)

The study highlights the versatility of using DGA recommendations in constructing healthy menus and considers it to be a proof-of-concept that shows a more balanced view of healthy eating patterns, where using processed foods can be an option.

A holistic approach that considers an individual’s diet in its entirety, with a focus on adequate nutrient intake, frequency of consumption, and appropriate portion sizes, should be considered.

2. Consequently, foods with different nutritional profiles may be categorized in one category, depending on the level of processing. The processed foods therefore contains products that vary greatly in their nutritional composition, as do foods prepared at home or at a restaurant. Foods prepared at home or at a restaurant are not as per definition healthier than those made by industries. Regardless of setting, foods’ nutritional value is defined by the ingredients used and the methods of preparation. Scientific evidence suggests factors like the nutrient quality of a product, the and the determine its health impact, and not the extent of processing.
3. UPF products are described in the guidelines to be low in native fiber and micronutrients, and it is said that the fortification of UPFs, doesn’t make them healthy (pg. 95). Many processed foods are high in fiber e.g. whole grain cereal fibers which contain naturally whole grains and are also fortified. Also Processed foods serve as a vehicle for nutritional fortification (coming from both inherent nutrients of the foods as well as added) and hence it cannot be said that they lack micronutrients and native fiber in general for processed foods. Food processing can in fact improve the nutrient composition of F&B, through reformulation to reduce levels of nutrients of concern (e.g., saturated fat, sugar and sodium), and can increase the content and bioavailability of nutrients which bring positive health benefits via e.g., micronutrient fortification¹⁵ and reduction of anti-nutritional factors respectively. Furthermore, food processing facilitates the development of specialised products to meet the dietary needs of specific population sub-groups.
4. It is not very clear from the paragraph on processing and nutritional aspects of products e.g. extruded products may be for making grains more palatable and such products may be naturally high in nutrients (proteins and micronutrients as well as fiber and may be further fortified to make them even more nutritious. Same can be true for other forms of processing. E.g. for a hot summer day, a dextrose fortified with vitamins and minerals may serve to take greater hydration products as compared to plain water. Similarly, sugar beverage made iso- molar with sodium potassium may help improve hydration.
5. Furthermore, food processing facilitates the development of specialised products to meet the dietary needs of specific population sub-groups, such as foods for infants and young children, specially formulated products for the elderly and medical nutrition products, animal-free options for vegans and vegetarians, as well as gluten-free products for those diagnosed with celiac disease, and low-sodium as well as low-lactose options for individuals with a range of medical conditions. Grouping and/or critiquing specific products based on the degree of processing they have undergone, without considering their

nutritional value, could result in consumers avoiding certain products, and in turn decrease their intake of certain nutrients. This undermines public health targets as well as industry's innovation and reformulation efforts, and could have negative implications on health equitability as well as health and nutrition outcomes¹

Hence, From the perspective of food science and technology, the degree of processing and the nutritional value of a product do not have a linear relationship, and these concepts need to be dissociated.

D. Safety of Additives is well established.

1. In the definition of UPF (Ultra Processed Foods), it is mentioned high number of additives which disparages the current established science. Food additives maintain or improve the safety, freshness, taste, texture, and/or appearance of food, in turn supporting access to nutritious, affordable and shelf-stable foods. These are not related to the nutritional quality of the product. Further, they are added in minimal quantities to fulfil the technological functional uses in foods. Additionally, additives play pivotal roles beyond preservation, such as extending shelf life and maintaining the natural appearance of food products. Therefore, we request for a reconsideration of the classification methodology to ensure that it accurately reflects the safety and utility of additives in food production while mitigating any potential negative connotations associated with their inclusion.
2. Furthermore, regulatory authorised food additives have undergone rigorous scientific assessment(s) and have been deemed safe for consumption at levels recommended for use based on the safety assessment carried out by the Joint FAO/WHO Expert Committee on Food Additives (JECFA) and limits set by the Codex Alimentarius Commission (CAC) respectively, as well as by national authorities. Other international risk assessment bodies include European Food Safety Authority - EFSA (EU), Center for Food Safety and Applied Nutrition - CFSAN (US FDA), Food Safety Australia and New Zealand - FSANZ, China Food Safety Authority – CFSA (China), etc. These scientific bodies evaluate the safety of food additives basis Risk assessment/ safety evaluation, and exposure assessment. In all geographies, there is a process and data requirements for the regulatory approval of food additives. Due to the evaluation process, all legally authorized additives are safe for consumption under the established maximum use levels in various food categories. An example of processing techniques such as germination, enzymatic reaction etc. that help improve the bioavailability of products and reduce anti-nutrient factors. Sometimes these techniques also provide flavour, hence diminishing the usage of flavouring agents.
3. Additives are also used at home and in restaurants. Examples are leavening agents to raise the dough, vanillin sugar to add flavour, gelling agents such as pectin and gelatine, or corn starch to thicken sauces. For example, citric acid is an additive added for acidity/ph regulation and is also found naturally in lemons, so how is it possible that citric acid as an additive when added to food makes it Ultra processed?

Hence, Food additives are strongly regulated to ensure they are used in the right way. The regulations indicate what types of foods certain additives can be used in, how much can be used, and how they must be labelled. Needless to say, that, if enough scientific evidence indicates risk, the related food additives regulations get amended.

E. Food Processing in India

1. Food processing plays a critical role in meeting the nutritional needs of a growing population. It helps converting raw agricultural materials into safe, tasty, nutritious foods and beverages. The transformation of agricultural raw materials into food products often mimics the steps of home cooking but at a much larger scale and better controlled, often more gentle conditions.
2. Enhances food safety, food preservation, extends shelf life, increases accessibility and convenience, reduces post-harvest losses, enhances nutritional content of food products, supports economic growth,

enhance farmer's income, creation of new employment opportunities and provides a significant boost to income levels by capturing a higher economic value. Further, it is also important for the food security; It increases access to seasonal foods and agricultural commodities. Large scale processing techniques enable making food reasonably priced.

3. Technological advancements help processing techniques deliver on improved production efficiency, reduced food and water waste and loss, and potentially lower carbon footprint.

The Food Processing sector of India has emerged as one of the strong growth engines of the powerful Indian economy in the last 6-8 years. India's food processing sector is considered the "sunrise sector" owing to the extensive raw materials available in the country. India ranks 1st in milk, livestock, pulses, and millet production and 2nd in rice, groundnut, tea, wheat, fruits & vegetables, and 3rd in fish production. In essence, the food processing industry is the backbone of the Indian food system, driving innovation and growth, and ensuring food security for the nation. There exists a huge potential and immense opportunities for entrepreneurs, MSMEs, global companies to setup infrastructure to meet the increasing consumer demand.

The food processing sector is one of the critical drivers of growth and has been acknowledged as a high priority industry by the government of India. MoFPI through its several schemes like PLISFPI, PMKSY, PMFME etc. is encouraging food processing of agricultural produce. This will increase employment opportunities for off-farm jobs, ensure remunerative prices of farm produce and higher income to farmers besides reducing food waste. In addition, Micro food processing Enterprises shall provide a big boost to the SHGs/FPOs/Cooperatives and micro food business and ensure adequate livelihoods for rural-urban communities. The conversion of agriculture produces to value added processed food is abysmally low at approx. 11% and is at the nascent stage of growth. India's food ecosystem offers enormous investment opportunities with stimulating growth in the food retail sector encouraging economic policies, and attractive fiscal incentives.

With an abundant supply of raw materials, increasing demand for food products, and the support of the government, the industry is expected to continue its rapid growth in the coming years. Overall, the food processing sector has the potential to be a major contributor to the Indian economy and to promote sustainability and inclusivity.

We are well aware about the multifaceted aspects of the food processing industry, acknowledging its role in fulfilling the consumer need gaps, addressing nutritional needs and driving economic growth of the food sector. The processing of foods plays an important role in food safety, and food- and -nutrition security. Given the importance of the food sector from farm-to-fork, we believe it is the need of the hour to raise awareness among stakeholders regarding the importance of and the facts and science in relation to food processing, particularly in the light of myths, misinformation and misconception surrounding processed food, which has led to the concerns among consumers and policymakers. Indian context of ill effects of the processed food are not studied w.r.t triple burden and use of fortification of food products to curb micronutrient deficiency in India.

In view of the above, we request NIN to consider the holistic approach and provide recommendation as per food processing & technological principles and provide clarity regarding the role and safety of food additives in packaged foods. Hence, we request to reconsider the 'strong statement' asking consumers to avoid packaged foods and foods containing additives. Demonizing Food Processing industry without studying its full role and aspects in India would be really damaging. Dietary guidelines and food policies should focus on the improvement of overall consumption and dietary patterns in order to improve public health outcomes, rather than the level of processing products have undergone.

F. HFSS definition & thresholds are not scientific

1. The definition of HFSS:

How do you define 'HFSS'?

HFSS foods are those foods that are prepared with excessive cooking oils/fats or more added sugar and salt. The exact values of added oils/fats, sugar and salt are given below. Also refer to Table 15.2; HFSS foods are classified into three categories. Food category 1 indicates energy, fat, sugar and salt within normal level from 100 grams food eaten. While categories 2 and 3 indicate higher levels of energy and fats or sugar or both along with excessive salt. Categories 2 and 3 fall under HFSS foods.

Based on the given statement, the HFSS definition is focused on energy (%), making the calorific value of a product higher. Subsequently, it draws a higher window for Annexure 1 19 | Page nutrients of concern. In other words, if the calorific value of food increases (for instance, by increasing the fat content; 1g fat=9kcal), the manufacturer will be able to add more amount of sugar, salt and fat in the formulation which tends to defeat the overall objective of helping consumers make healthier choices and enabling industry to reformulate healthier products. Additionally, the definition of HFSS is based on dietary intake goals aimed at maintaining a healthy diet, such as limiting sugars to less than 10% and not 5% of total energy intake, oils and fats to less than 15%, and sodium to no more than 2g per day. These goals provide guidance for overall dietary balance throughout the day. However, applying these goals directly to nutrient profiling criteria for defining threshold without considering the factors of different category of foods and their place in overall diet concept is leading to significant challenges. Foods, whether natural or processed, cannot be tailored to meet specific dietary goals. This complexity risks categorizing nearly all pre-packaged foods as HFSS, potentially stifling innovation and growth in the food processing sector. The diets are influenced not only by the nutrient composition of individual foods but also by portion sizes, frequency of consumption, variety of foods consumed, and their combinations, as well as associated status of lifestyle modification and physical activity status of individuals. The definition also emphasizes that even home-made foods may become unhealthy if they are high in fat, salt and sugar. These factors collectively shape dietary patterns and should be considered alongside nutrient profiles when evaluating food classifications.

2. Thresholds for HFSS Categorization

How do you define 'HFSS'?

HFSS foods are those foods that are prepared with excessive cooking oils/fats or more added sugar and salt. The exact values of added oils/fats, sugar and salt are given below. Also refer to Table 15.2; HFSS foods are classified into three categories. Food category 1 indicates energy, fat, sugar and salt within normal level from 100 grams food eaten. While categories 2 and 3 indicate higher levels of energy and fats or sugar or both along with excessive salt. Categories 2 and 3 fall under HFSS foods.

As per Draft Food Safety and Standards (Labelling & Display) Amendment Regulations, 2022, 'Saturated fat' is considered as a nutrient of concern, forms a part of HFSS definition and mandates FOPNL under INR model. Similarly, the FSS labelling regulations also mention 22g as saturated fat as RDA for labelling purposes. Codex also recognizes saturated fat as a nutrient of concern which has an NCD NRVs of 20g for 2000 kcal reference

energy intake. Hence based on well-established references, it is inappropriate that saturated fats have not been considered as a nutrient of concern in threshold criteria and total fat has been considered inappropriately in the HFSS threshold criteria. High Saturated Fat has been defined in the guidelines whereas the threshold criteria in the table is not mentioned. Fats are essential for the body as stipulated in a separate guideline. Hence ICMR guidelines on high fat threshold tend to divert from the global Codex and current Indian regulatory recommendations on nutrients of concern for FOPNL/ HFSS definition. iv. Added fat new definition added under HFSS but it is not clear which products are to be taken in which added fat is consumed. Will it only be products with added edible oil and not milkfat-based products? For example in products that have mixed edible oils and milk fat and oils used are healthier oils, how will we differentiate between added fat and natural fats and whether these products will be seen as HFSS? Further, we need clarification that are dairy based products that have milk fat will be seen as added fat or natural/inherent fats. v. CONCERN ON SODIUM- Sodium threshold in the HFSS table 15.1 and 15.2 has been set at 250 mg. This is the same value as the WHO SEARO document. The impracticality of 250mg/100g value was highlighted in past also. If we look at the history of FOPNL discussions for packaged foods proposals were higher than this limit for most of solid food categories. This was due to several factors like current level of sodium in products, steady reformulation work, gradual reduction approach as followed in international markets with reduction and benchmark targets.

The current HFSS criteria focus solely on products "as sold," overlooking the principle of reconstitution for various food items. Many products undergo processes such as rehydration, dilution, mixing with water, or draining of water or brine before consumption, altering their nutritional profile significantly. For such products, including soups, milk powders, beverage mixes, squash concentrates, and dehydrated items like dips and chutneys, thresholds should apply to the food "as prepared" by the consumer rather than "as sold." This approach aligns with international nutrient labelling models such as the Health Star Rating in Australia, UK Front of Pack labelling, and Singapore Healthier Choices scheme. It ensures that consumers receive accurate nutritional information relevant to the final, consumed form of the product, reflecting its intended use and avoiding potential misinformation based on the product's initial state.

G. HFSS: Serve size vs 100g/ 100 ml:

India has a diverse diet and classifying the diet basis 100g or 100 ml is highly impractical and will mislead the consumers. Further, threshold criteria table is non-scientific and the basis of classification is 100g however serve size or consumption factor has not been considered. There are many other factors like population group, needs of the population group. Primarily it is not scientifically justified to have such classification in the guidelines and we request NIN to revoke this guideline in absence of sufficient scientific substantiation.

Further, In context of the given table, it could be seen that the threshold criteria has been applied as per 100g or ml. However, the concern lies with the amount of calories specific for solids and liquids. With reference to the Food Composition Table, it is noted that even 100g of some staple foods like mixed flours, millet flours, nuts, pulses, chicken, etc. would have more than 250 Kcal which do not seem to comply with the given threshold value. In a country like India, where milk and other beverages are largely consumed by people irrespective of their age and lifestyle, a threshold value of 70 Kcal seems inappropriate against the serve size of the product. Current thresholds are the basis form of the food rather than the nutrient profile therefore, the cut-off of 70kcal for a liquid is arbitrary.

It is very important to understand that it is not food but its portion size which is mainly responsible for calories and other nutrients. NIN guideline 15 has also emphasized that even homemade foods may become unhealthy if they are more in fat, salt & sugar. Moderate consumption is the key to maintaining a balanced diet and nutrients hence it is very important to understand the portions of the foods and there is a need to do an extensive study to see the impact of being mindful of portion size of the foods which can be very effective in achieving the goal of maintaining a healthy lifestyle when combined with physical activity. The simple and effective method should be to encourage the consumers to consume food in moderation which is the key factor rather than to avoid it completely.

H. GUIDELINE 17: READ INFORMATION ON FOOD LABELS TO MAKE INFORMED AND HEALTHY FOOD CHOICES

Added Vitamins and Minerals may not include all the nutrients that are present in the original foods

1. Table no. 17.1 presents details on the nutrition facts that are expected to be stated in the label and factors to be taken into consideration for making healthy choices. Within that table it is mentioned, “Naturally present vitamins, minerals and fibre have health benefits, but added vitamins and minerals may not include all the nutrients that are present in original foods”

Dietary fibre, vitamins and minerals	Check if the vitamins, minerals and fibre in the product are natural or added. It is mandatory to display them under 'Nutrition Facts' in the label. Naturally present vitamins, minerals and fibre have health benefits, but added ones may not include all the nutrients that are present in original foods.
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2. All foods taken in diet may not be nutritionally complete. The addition of nutrients to foods is required to fulfil the nutritional deficit in foods or dietary gaps in diets because of Nutrient Deficiencies in Original Foods which can be due to Inherent Nutrient Gaps or Variability in Natural Foods or processing losses. To deal with micronutrient deficiencies, there are numerous ways to enhance micronutrient levels in the human's diet with dietary diversification, however, there are so many recent technological advancements which include various strategies to alleviate micronutrient deficiencies like fortification, bio-fortification and genome wide association studies which lead to improvements in micronutrient content of foods.
3. Addition of Vitamins and minerals to foods has always been considered Positive nutrients enhancement of foods. Even, FSSAI promotes Fortification in staple foods and processed foods through Fortification regulation. This is an excellent method to improve the health of a large section of the population. To reduce the high burden of micronutrient deficiencies in India, addition of vitamins and minerals is being done by FBOs in various food categories in line with FSS Act 2006, FSS Regulations made thereunder. Same principal is used globally and hence the above statements mentioned in guidelines may be against such fortification programs. Local regulator formulated FSS Fortification regulation basis scientific rationale and evidence demonstrating fulfilment of one or more of the purposes listed above. As per FSSAI, “fortification” means deliberately increasing the content of essential micronutrients in a food so as to improve the nutritional quality of food and to provide public health benefit with minimal risk to health. Fortification can help in a) Preventing or reducing the risk of, or correcting, a demonstrated deficiency of one or more micronutrients in the population or specific population group; (b) reducing the risk of, or correcting, inadequate nutritional status of one or more micronutrients in the population or specific population group; (c) meeting requirements or recommended intake of one or more micronutrients; (d) maintaining or improving health; (e) maintaining or improving the nutritional quality of foods. Guidelines have undermined the importance of fortification in foods and negating the effort of industries and FSSAI. FSSAI's initiative through the FFRC to address the malnutrition of Micro-nutrients is quite remarkable like the fortification of milk and edible oil with Vit A and Vit D, Iron and Iodine fortified salt, Vitamins and mineral fortification of rice and wheat flour. In addition to this drive, the regulation on the Advertisement and claims laid down by the FSSAI is another milestone, which allows the addition of Vitamins, minerals, and other positive nutrients to the General food products. This encourages the industry to improvise the nutritional quality of the generally consumed food products. While Govt. is promoting programs like FRK introduction into PDS system for outreach expansion for fortified foods it is strange to see that at same time products with fortification are being asked to remove their fortifications.
4. Food enrichment with micronutrients & fortification are important tools that helps manage malnutrition. Vitamin and mineral addition voluntarily done is not keeping in mind the replenishment of nutrients in original foods. It may be done looking at foods being a vehicle of fortification depending upon the population target group and needs of the product. Even it can happen that added vitamins and minerals

may have more than the nutrients which are present in original foods based on the principles of addition of nutrients.

5. Even as per Codex guidelines CAC/GL 9-1987, Essential nutrients may be appropriately added to foods for the purpose of contributing to:
 - a. preventing/reducing the risk of, or correcting, a demonstrated deficiency of one or more essential nutrients in the population hence, Mandatory Addition of Essential Nutrients to Address a Demonstrated Public Health Need is practiced.
 - b. reducing the risk of, or correcting, inadequate nutritional status or intakes of one or more essential nutrients in the population;
 - c. meeting requirements and/or recommended intakes of one or more essential nutrients;
 - d. maintaining or improving health; and/or
 - e. maintaining or improving the nutritional quality of foods by the addition of Essential Nutrients for Restoration

Hence, the addition of Vitamins and minerals voluntarily is not based on the principle of replenishment of nutrients in original foods, rather it is based on the product profile as a vehicle of fortification depending upon the population target group. Even it can happen that added vitamins and minerals may have more than the nutrients that are present in original foods.

Claims criteria under “Reading the Label” guideline – seem to have been redefined for certain claims which are already defined in FSSAI Claim regulations based on certain international best practices. The section of “Can label claims be misleading?” is framed very generically and not aligned with FSS Claims & Advertising Regulation (pg 109). FSSAI Regulations are in line with most global regulations and widely accepted.

For example: A good source of ‘protein/ vitamin D or other nutrient’ is defined as, a single serving of the food containing 10% to 19% amount of that nutrient.

‘Good source of protein, vitamin D’ or other nutrients’: A good source means that a single serving of that food has 10% to 19% of the amount of that nutrient. While this information is useful, read about the quantity of these nutrients with reference to daily nutrient recommended.

The FSS (Advertising & Claims) Regulation, 2018 provides distinct requirements for proteins, vitamins/minerals to claim a product as a ‘source’ of that particular nutrient based on ‘Recommended Dietary Allowance’. For the purpose of the above-mentioned statement, besides FSSAI recommendations for 100g/ml/kcal, the per serve requirement for the nutrient claim are as follows:

Protein	Source	10 per cent. of RDA per serving
	Rich/ High	20 per cent. of RDA per serving
Vitamin(s)/ Mineral(s)	Source	15 per cent. of RDA per serving
	Rich/ High	a) per cent. of RDA per serving

To the contrary, these guidelines provide a common bracket of 10-19% for all nutrients with reference to the daily nutrient recommended. This gives rise to a sense of ambiguity especially when the term ‘source’ is being understood differently by two major Government bodies in the country. This can strongly impact the consumer interpretation of the food products and hence their dietary choices.

1. The claims like ‘natural’, ‘real’, ‘sugar free’, ‘low fat’, etc. are usually made by FBOs in compliance with the FSS (Advertising & Claims) Regulations, 2018. The statements like ‘such claims could be misleading’, ‘the terms natural is often used loosely’, ‘any food item with even a small amount of fruit’, ‘the words made with whole grain could be misinterpreted’, etc. questions the provision of the regulations and compliance by the industry. Based on the definition of real or natural defined in regulations and standards by FSSAI, FBOs are operating in market for many years. These are even globally recognized terms and standards of identities and the ICMR calls these misleading can be a jeopardy for a product already in market and which comply to local regulations.
2. Many claims like ‘made with whole grains’ are basis product detailing and scientific substantiation available with FBO’s. these are allowed to be made in regulations and hence it would be unfair if another govt document calls them misleading can be very contradictory and issue for FBO’s.
3. Nutrition claim refers to any statement, which suggests or implies that a food has nutritional properties. Claims like 'low calorie', high fibre', 'low fat', 'low sodium' is not complete information. These must be substantiated by providing the actual values or nutritional facts about the product. – This statement is not logical as all such claims are guided by stipulations laid down in our country’s Claims Regulations under the Regulatory apex body FSSAI and complete information is already provided on the label under Nutrition Information Panel. It is a mandatory information under FSSAI Labelling regulations. The guideline is actually going beyond its brief, scope of work and focus and getting into the realm of regulatory changes. Rather it needs to align with the already established standards that are being followed by industry and regulated by the Regulator.

Hence Dietary guidelines should not get into the realm of regulatory prescriptions and redefining of claims criteria that are not aligned with globally accepted regulations / Local FSSAI Regulations and best practices which are based on scientific rationales.

Table 17.1 Dietary fibre, vitamins and minerals

Current Statement - ‘Dietary fibre, vitamins and minerals- Check if the vitamins, minerals and fibre in the product are natural or added. It is mandatory to display them under ‘Nutrition Facts’ in the label. Naturally present vitamins, minerals and fibre have health benefits, but added ones may not include all the nutrients that are present in original foods’

Proposed Statement - Vitamins, minerals and dietary fibre have health benefits. It is mandatory to display them under the ‘Nutrition Facts’ in the label. A balanced diet should include foods rich in these nutrients along with fibre for overall wellness.

Table 17.1. Mandatory nutrient information to be provided on the label

Nutrient information on the label	Importance of choosing the food
Energy	<ul style="list-style-type: none"> Note calories per serving, presented in 'Kcal', which stands for kilocalories. Check number of servings. If the label states, two servings for the entire packet and the calorie content is 100 calories per serving, then use of the entire packet would imply consumption of 200 calories. 'Fat-free' does not mean 'calorie-free'.
Carbohydrates and sugar	Check for 'energy' coming from carbohydrates and sugars. Pay attention to sugars, especially added sugars, to reduce risk of obesity and NCDs. Select foods that are low in refined carbohydrates.
Fats	Select the food or variant of the foods, that are low in refined carbohydrates and total fat content, especially saturated fats, and those that contain no trans fats. This would help in reducing risk of heart disease.
Sodium	Select foods that are low in sodium content to help reduce the risk of high blood pressure.
Dietary fibre, vitamins and minerals	Check if the vitamins, minerals and fibre in the product are natural or added. It is mandatory to display them under 'Nutrition Facts' in the label. Naturally present vitamins, minerals and fibre have health benefits, but added ones may not include all the nutrients that are present in original foods.
Recommended Dietary Allowances (RDAs)	Food labels display nutrient contents as a proportion of the RDAs, i.e. percentage of the nutrients in relation to a 2000 Kcal/day recommendation.

Vitamins and minerals are crucial for human health, aiding growth and preventing deficiencies. Food should be rich in nutrients like vitamin, mineral and fibre to make it holistic. Most of the micronutrients may be lost from the original food during processing and hence fortification is used to restore any lost nutrients during processing and enhance the nutritional quality of the food.

WHO strongly advocates large-scale food fortification as a highly effective and cost-efficient strategy to combat vitamin and mineral deficiencies, such as iodine deficiency disorders, anaemia, and iron deficiency. Over the past several decades, numerous countries have successfully eradicated iodine deficiency disorders through the widespread fortification of salt with Potassium Iodate. Ferrous sulphate is extensively employed as a fortificant in milk, modified infant formulas, and flour. Cereals were commonly introduced as initial complementary foods for mass fortification, during their commercial preparation. Additionally, centrally processed milk-based products tailored for infants and pre-schoolers are fortified to combat iron deficiency anaemia effectively. This initiative underscores significant progress in global public health efforts.

Needless to mention importance of fortification was key in eliminating Goitre in Indian population by fortifying and mandating sale of IODIZED SALT by FSSAI. Similarly, fortification of fats & oils has been suggested by FSSAI considering Vitamin D & A deficiency in Indian population. The natural sources are inadequate in providing the ADI of required micro nutrients.

NIN guideline is summarily rejecting the fortification initiatives over last several decades. It also contradicts existing FSSAI guidelines and fortification initiatives by GOI and WHO. Over the past decade, both the FSSAI and ICMR-NIN have promoted numerous fortification programs for addressing micro nutrient deficiencies in India.

I. GUIDELINE 8 – Obtain good quality proteins and essential amino acids (eaa) through appropriate combination of foods and avoid protein supplements to build muscle mass

India's protein consumption

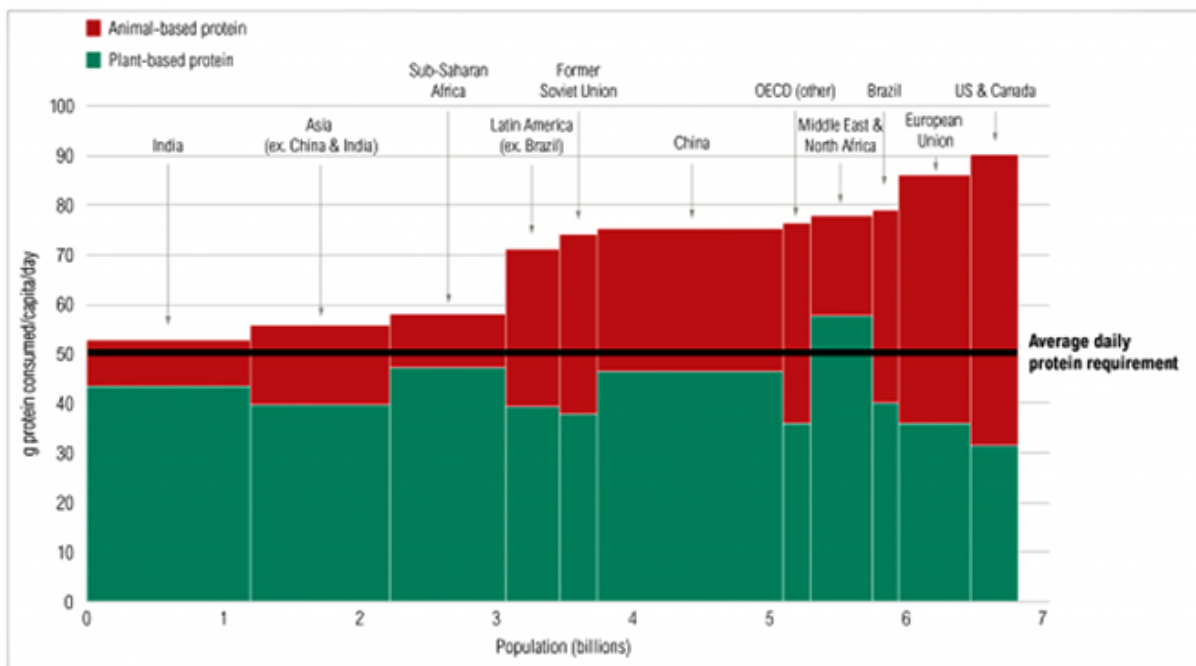
Protein, an essential macronutrient with muscle building and regulatory roles is essential for the synthesis of hormones and essential immune modulating regulators. This is why regular Indian diets need to urgently recalibrate the quantity and quality of proteins consumed per day. Although as per the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

1. A 2017 survey shows that 73 percent of Indians are deficient in protein while above 90 percent are unaware of the daily requirement of protein. This survey across 16 cities in India on perception, knowledge and consumption of protein found a gap in the knowledge of quality protein in daily diets. Various myths surround protein consumption with 85 percent believing it leads to weight gain. (Source: A recent survey titled 'Protein Consumption in Diet of Adult Indians: A General Consumer Survey (PRODIGY)')
2. As per data from surveys and research conducted, (NNMB survey 2009), The median intake of protein (47g/CU/day) was less than RDA of 60g and was lower in all the States. (Source [https://www.nin.res.in/downloads/NNMB_Third_Repeat_Rural_Survey%20%20%20Technical_Report_26%20\(1\).pdf](https://www.nin.res.in/downloads/NNMB_Third_Repeat_Rural_Survey%20%20%20Technical_Report_26%20(1).pdf), <https://www.nin.res.in/downloads/NNMBTribalReport.pdf>)
3. Close to 9 out of 10 people have inadequate protein intake. A PROtein consumption in Diet of adult Indians, a consumer survey (PRODIGY) was conducted in seven major cities in 1260 respondents across India in order to assess the consumer understanding of protein in their day-to-day life. It was observed that around 9 out of 10 consumers had a diet deficient in proteins. This was regardless of the gender and the socio-economic group A and B interviewed.

India vs Global scenario

Globally, protein consumption is on the rise, averaging 68 gm per person per day (Figure 1). India has the lowest average protein consumption (at 47 gm per person per day) as compared to other Asian countries as well as developed nations

Figure 1: Protein consumption around the world



Source: Ranganathan, J. et al. 2016. "Shifting Diets for a Sustainable Food Future." Working Paper, Installment 11 of Creating a Sustainable Food Future. Washington, DC: World Resources Institute

Role of Indian diet in addressing protein need

The EAT LANCET report shows that Indians consume more simple carbohydrates and less complex carbohydrates, proteins, and fruits and vegetables in their diets. The [Indian Consumer Market 2020](https://www.the-lancet.com/commissions/EATEat) shows high monthly expenditure on cereals, processed foods with only one-third of the food budget being spent on protein-rich foods. (Source: <https://www.the-lancet.com/commissions/EATEat>) In today's scenario, there are various challenges that protein requirements may not be met by diets only. So it's a myth that daily diet of an adult often

provides 60-70 gram of protein a day which is higher than what we require. (Source <https://righttoprotein.com/assets/pdf/Indias-Protein-Paradox-Study.pdf>)

Various other factors attributed to lesser protein consumption are lesser awareness, vegetarianism, vegan, fast paced lifestyle, travel, economic constraints and exercising persons not meeting higher protein needs

Role of protein in Muscle synthesis

Here are key points from various clinical studies that highlight the role of protein in muscle mass development:

1. **Muscle Protein Synthesis:** Protein intake stimulates muscle protein synthesis, which is essential for muscle growth. As per study protein consumption after resistance exercise significantly enhances muscle protein synthesis, leading to muscle hypertrophy over time Phillips, S. M. (2016). The impact of protein quality on the promotion of resistance exercise-induced changes in muscle mass. *Nutrition & Metabolism*, 13(1), 64. <https://nutritionandmetabolism.biomedcentral.com/articles/10.1186/s12986-016-0124-8>
2. **Optimal Protein Intake:** The Recommended Dietary Allowance (RDA) for protein may not be sufficient for those aiming to increase muscle mass. Clinical guidelines suggest higher protein intake (1.4 to 2.0 g/kg body weight) for athletes and individuals engaging in resistance training to maximize muscle protein synthesis and muscle growth.

Jäger, R., et al. (2017). International Society of Sports Nutrition Position Stand: protein and exercise. *Journal of the International Society of Sports Nutrition*, 14(1), 20. <https://www.tandfonline.com/doi/full/10.1186/s12970-017-0177-8>

SAFETY OF PROTEIN INTAKE¹

- Regarding Renal disease
 - Scientific evidence for excess protein consumption and renal disease stems majorly from animal models and patients with co-existing renal disease as per our knowledge.
 - A well-designed prospective cohort study measured protein intake using semi-quantitative FFQ summarized that high protein intake was not associated with renal function decline in women with normal renal function².
 - On similar lines, there was no effect of age, sex, sex, weight, and kidney function between non-vegetarians and vegetarians (a group demonstrated to have lower dietary protein intakes)^{3,4}, and both groups also displayed the same rate of progressive deterioration in renal physiology with age⁴.
 - While it is emphasized that, as such, the extension of the relationship of high protein consumption and renal disease to healthy individuals with normal renal function is inappropriate, it would be good to include a word of caution to those with mild renal insufficiency, the need to closely monitor their protein intake as there is also observational data from epidemiological studies provide evidence that dietary protein intake may be related to the progression of renal disease^{5,6}.
- Regarding loss of calcium from bones:
 - Increasing protein intake from 0.78 to 1.55 g/kg.d with meat supplements in combination with reducing carbohydrate intake did not alter urine calcium excretion in elderly men and women (the segment of the population most susceptible to osteoporosis)⁷

- Data from stable calcium isotope studies is emerging, which suggests the main source of the increase in urinary calcium from a high-protein diet is intestinal (dietary) and not from bone resorption⁸

- NEED FOR HIGHER PROTEIN LEVELS DURING EXERCISE/ATHLETES

- Nutrient requirement is not the same in all people and can vary considerably (distributed) even among normal, healthy individuals.
- Unlike the other two macronutrients or energy, protein is not stored in the body as a reserve and the daily protein intake should match the daily protein metabolism to satisfy a man's daily protein requirements⁹.
- As per the approaches adopted by Expert Group (ICMR-NIN 2020) to define the protein requirements for Indians of different age groups, a median obligatory nitrogen loss (WHO, 2007) has been used to compute mean (0.66 g/kg/day-EAR) and safe protein requirements (0.83 g/kg/day-RDA) for healthy Indian adults¹⁰.
- It is to be duly also considered that this amount of protein intake may be appropriate for non-exercising individuals, but it is likely not sufficient to offset the oxidation of protein/amino acids during exercise (approximately 1–5% of the total energy cost of exercise) nor is it sufficient to provide substrate for lean tissue accretion or for the repair of exercise induced muscle damage^{11,12}.
- Vast research supports the contention that individuals engaged in regular exercise training require more dietary protein than sedentary individuals. It has also been observed that prolonged exercise increases protein requirements (1.2–1.4 g/kg weight), due to protein catabolism and positive nitrogen balance¹³.
- Protein requirements would also vary depending upon the intensity and duration of the endurance exercise, as well as the training status of the individual. For example:
 - an elite endurance athlete may require a greater level of protein intake.
 - as endurance exercise increases in intensity and duration, there is an increased oxidation of branched-chain amino acids, which creates a demand within the body for higher protein intakes.
 - Strength/power exercise is thought to increase protein requirements even more than endurance exercise, particularly during the initial stages of training and/or sharp increases in volume.

CONCLUSION¹:

Protein requirement is very much essential for daily requirements and muscle mass development and thus crucial for the human body for its efficient functioning. Despite this fact the protein consumption of India is below the requirements and is at lowest average protein consumption (at 47 gm per person per day) as compared to other Asian countries as well as developed nations. Various other factors attributed to lesser protein consumption are lesser awareness, vegetarianism, vegan, fast paced lifestyle, travel and economic constraints. In view of this background, to address this challenge, the role of protein supplementation may not be completely negated. Protein requirements may not be met by diets only. The amount is dependent upon the mode and intensity of the exercise, the quality of the protein ingested, and the status of the energy and carbohydrate intake of the individual. Concerns that protein intake within this range is unhealthy are unfounded in healthy, exercising individuals. An attempt should be made to obtain protein requirements from whole foods, but it is also suggested that supplemental protein, when daily requirement is not met through whole foods, is a safe and convenient method of ingesting high quality dietary protein. However, due diligence should be given in selection of these sources in terms of safety, labelling

and quality (including all essential amino acids) of these products. In addition, awareness needs to be created amongst the consumers in the selection of these sources, quantity and frequency of consumption etc.

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 16. https://www.researchgate.net/publication/347523282_India's_protein_deficiency_and_the_need_to_address_the_problem
 17. Protein Consumption in Diet of Adult Indians: A General Consumer Survey PRODIGY, Manish Mahajan (<https://imsear.searo.who.int/items/d1e6343a-a250-4d88-a674-6af6ca75c336>)
- J. GUIDELINE 7 – Use oils/fats in moderation; choose a variety of oil seeds, nuts, nutri-cereals and legumes to meet daily needs of fats and essential fatty acids (EFA)**

Concern 1: Quality of Fats - Oils form a part of a balanced diet and hence it is noteworthy to mention that the quality of fats is equally important as the quantity of fats. Different fats are evidenced for different health impacts. Comparing all fats as similar and compounding together as fat content does not justify the nature of beneficial fats in Indian diets. The saturated fats are evidenced to be harmful when consumed in excess in

established literature and guidelines and major dietary guidelines limit the consumption of saturated fats. Hence, to be in line with established science the guidelines should not compare the same with overall fats. MUFA and PUFA are considered as “good fats” balanced MUFA and PUFA are deficient among Indians, thereby needs to be promoted for a more balanced approach. Guidelines should not “limit or avoid the consumption of all fats but only those which are proven to be adverse.

Concern 2: Choice of cooking oils:

- (a) Options like rotation, and admixing/Multisource Edible Oils (MSEOs), are beneficial to obtain the benefits of many oils as no single oils consist of the balance of fatty acids. MSEOs, which are readily available and convenient to be used by consumers should be promoted. MSEOs offer the benefits of two-three seed oils in terms of MUFA -PUFA balance, inherent bioactive compounds (oryzanol, sesamol, tocopherols) and are clinically proven as beneficial for management of NCDs like Diabetes and CVDs. Since, India is currently facing triple burden of malnutrition with prevalence of overnutrition and NCDs constantly increasing, consumption of healthier cooking oils is beneficial in maintaining normal health and NCDs. Moreover, for consumers, guidance should be given to consumers on choices of cooking oils and it is crucial to mention that MSEOs as a source for same which were a part of erstwhile Dietary Guidelines hence reinstating the same in the recent version is quite imperative. \
- (b) Cold Pressed Oils like Kachhi Ghani oil etc. are good options for consuming (in moderation) vegetable oils with benefits of Omega 3 PUFA. The guidelines mention that cold pressed oils contain certain undesirable components providing reference to the ‘undesirable components’ mentioned under Crude Vegetable Oils. Ideally ‘Crude Vegetable oils’ cannot be consumed directly or incorporated into various food applications without technological treatments (refining). Hence, this provides a negative perception for the readers/ consumers to make an informed healthier choice amongst the oil food group. Additionally, there is no mention of ‘Choice of Cooking oils’ and its focus on using a combination of oils as mentioned previously in DGI 2011.

Choice of cooking oils

In view of the above, an ideal quality fat for good health is the one which maintains a balance, so as to give a ratio of polyunsaturated/ saturated (PUFA/ SFA) of 0.8-1.0, and linoleic/ α -linolenic (n-6/ n-3) of 5-10 in the total diet. For ensuring this appropriate balance of fatty acids in cereal-based diets, it is necessary to increase the α -linolenic (n-3) acid intake and reduce the quantity of linoleic (n-6) acid obtained from the cooking oil. Hence, the choice of cooking oil should be as follows:

Groundnut or Sesame or Rice bran + Mustard
Groundnut or Sesame or Rice bran + Canola
Groundnut or Sesame or Rice bran + Soyabean
Palmolein + Soyabean
Safflower or Sunflower + Palmolein + Mustard

Use of more than one source of fat/oil has the added advantage of providing a variety of minor components in the diet. An additional way of increasing α -linolenic (n-3) acid intake is to ensure regular consumption of oils and foods rich in

49

Allowance of mixing or rotating oils in Guidelines 2011 (Pg 49)

- (c) Concern 3: Distinction between trans fats - While trans fats have been asked to be avoided, no distinction has been observed for naturally occurring trans fats from milk and ruminants which are proven to have beneficial effects. With reference to the FSS (Labelling & Display) Regulations, 2020, labelling requirement for trans fats (other than naturally occurring) are outlined. Further, the guideline describes trans fats as those produced from hydrogenation of vegetable fats and hence does not include those which are naturally occurring. Therefore, considering streamlining the

recommendation, we are of opinion that a clear distinction in recommendation be made, thereby exempting naturally occurring trans fats from it.