

Protein Fortification of Food Products



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Protein fortification may be explained as enrichment of protein deficient foods by external addition of ingredients containing high protein



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Protein Claims

- 5 years ago, protein claims were generally reserved for sports nutrition or specialist sectors. Now, the market has evolved toward the conventional sectors as well.
- Market appetite for protein fortification.
- Consumers expect convenient and healthy products, along with taste and price parity.

27%↑

high protein claims
in 2016

Product launches containing alternative plant-based ingredients increased 62% globally between 2013-2017

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Why do we need Protein Fortification?



Obesity

21%

of Indians are overweight

7%

of Indians are obese

Obesity acts as a predisposing factor for non-communicable diseases



Cardiovascular diseases
(heart attack and stroke)



Diabetes



Musculoskeletal disorders
(osteoarthritis)



Weight Management



Calorie Intake ↓

+

=



Weight Loss



Energy Expenditure ↑



Weight Management

01

increase energy
expenditure

A high protein diet stimulates amino acid synthesis, which leads to a boost in metabolism, which aids weight loss.

02

carbohydrate
replacement

Reducing the glycemic load helps in weight maintenance. Protein has no contribution towards increasing the GI.

03

increased
satiety

A high protein diet helps in obtaining satiety, leading to a lower calorie intake, thus helping in weight loss.

Protein is the answer!

Diabetic people in India in 2019

77 million

People that die from NCDs each year

5.8 million

Risk of Coronary Artery Diseases (CADs) in Indians:

6x Chinese
20x Japanese





How Protein Helps

- A high protein and fiber diet, along with regular physical exercise can help in combating diabetes. Reduction in intake of simple carbohydrates and starchy foods help in reducing the glycemic load.
- A diet rich in plant protein is shown to have reducing the risk of various Non-Communicable Diseases (NCDs) like cancer, diabetes, cardio-vascular diseases, etc.
- Certain amino acids like leucine, taurine, cysteine, present within the proteins have showed anti-hypertensive effects, and help in lowering the risk of CVDs.



Problem of PEM in India

PEM is measured in terms of:



Underweight
(low weight for age)



Stunting
(low height for age)



Wasting
(low weight for height)



PEM refers to an imbalance between the supply of protein and energy and the body's demand for them to ensure optimal growth and function.
- World Health Organization

Preschool children (< 6yrs) affected the most



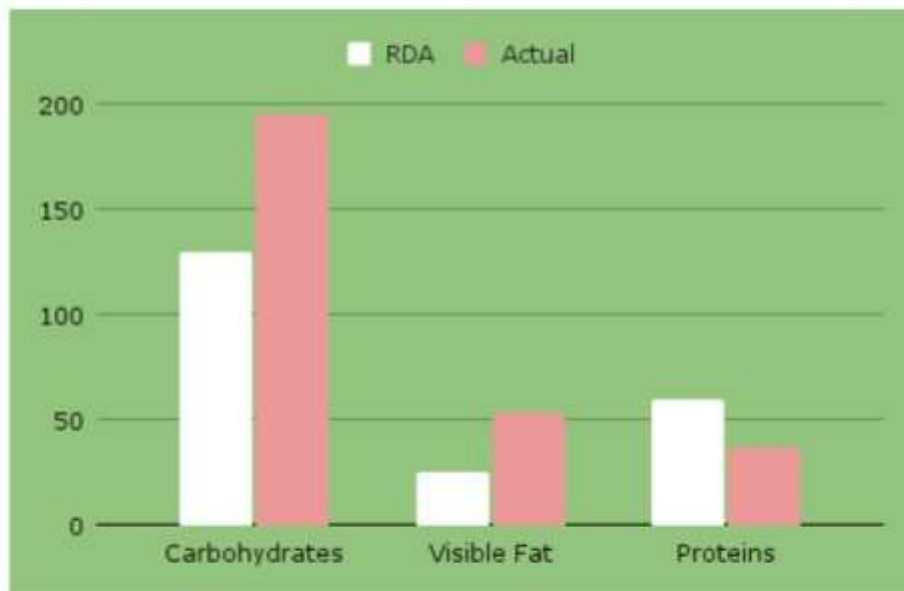
Status of PEM

- Nearly half of all under-5 child mortality in India is attributable to undernutrition.
- 46.6 million stunted children, a third of world's total
- Prevalence of stunting among under five is 48% and wasting is 19.8%
- India highest in the world with underweight prevalence of 42.5%





RDA vs Actual Consumption



Source: Agrawal et. al., 2020



Where We Stand

73% OF URBAN RICH INDIA IS PROTEIN DEFICIENT

Large sections of Indians cannot afford a balanced diet. But what makes the urban rich follow diets that are low on protein? An IMRB survey reveals the high levels of protein deficiency among the well-heeled and the protein myths they believe

Myths about protein sources...

PROTEIN EASILY AVAILABLE IN FRUITS AND VEGETABLES

70% pregnant women, lactating mothers wrongly believe this

LEAFY VEGETABLES GOOD SOURCE OF PROTEIN

73% in urban India think it's true

PROTEINS ARE BAD FOR HEALTH

20% of those surveyed believe a protein-rich diet is unhealthy

STATE OF URBAN WELL-OFF INDIA

73% diets protein deficient

93% unaware of ideal protein requirement

84% veg diets deficient

65% non-veg diets lacking

97% pregnant women don't know protein needs

53% rated protein as most essential for its health benefits. But, alarmingly...



...only 1/3rd believe lack of protein can cause weakness/fatigue

BEST SOURCES

Protein sources like fruits, vegetables, grains, etc. lack one or more essential amino acids

Dairy products are protein rich, and among 'vegetables', soyabean best



Mapping India's high deficiency levels

By DEMOGRAPHY

Protein deficiency in 70% of parents

Singles seen to have better protein intake than families

Approx 62% of pregnant women/lactating mothers face protein deficiency

Only 52% of mothers of 8-15 year olds associate protein with health

Working women and housewives found to be 70%-80% protein deficient

By GEOGRAPHY

Locknow 90%

Almredabad 84%

Mumbai 70%

Vijaywada 72%

Chennai 84%

Kolkata 43%

Of 6 cities surveyed, Locknow most protein deficient, Kolkata the least

Men with families most protein deficient

75%

Men with families

Mothers 72%

Single women 53%

Single men 44%

Children (10-15 yrs) 44%

Source: IMRB's Understanding Protein Myths & Single among Indian's study

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How to go about Protein Fortification?



Replace Fats and Carbs with Protein



FAT
9 cal/g energy



PROTEIN
4 cal/g energy



Sources of Protein

Animal based sources

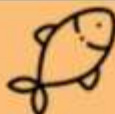
MILK



EGG



FISH



MEAT



Plant based sources

NUTS



PULSES



SOYA



SEEDS





Benefits of Protein

**MUSCLE GROWTH
& STRENGTH**



**APPETITE
REDUCTION**



**STRONGER
IMMUNE SYSTEM**



**CONTROL BLOOD
PRESSURE**



**BODY AND
TISSUE REPAIRS**



HAIR AND SKIN



3

Different Ways of Protein Fortification



High Protein Products

SNACKS

High protein snacks like **trail mixes**

Fried and high protein snacks like **moong dal**



SUPPLEMENT PRODUCTS

Protein **powders**

Protein **shakes**



High protein and energy **drinks**

Protein **bars**

MEAL REPLACEMENT



High protein **cookies**

High protein **bread** and **cakes**

BAKED PRODUCTS





Snacking in India

60% of Indians snack more than twice a day

15% are "super snackers" who snack more than 4 times a day

91% of Indians want to explore healthier alternatives while looking to 'snack up'





Popular Indian Snacks



Nutritional Information (Value per 100 g)	Bhujia	Chips	Biscuits	Vada Pav	Recommended RDA
Carbohydrates (g)	45.9	54.9	71.3	55.0	275.0 g
Protein (g)	8.8	6.5	7.8	3.0	55.0 g
Fat (g)	41.4	33.9	18.5	21.0	75.0 g



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How easy is Protein Fortification?

There is more to fortification than easily adding any protein source. Proteins have significant effects on the texture and flavor of a product. Therefore, the correct **functional protein** according to individual product properties.

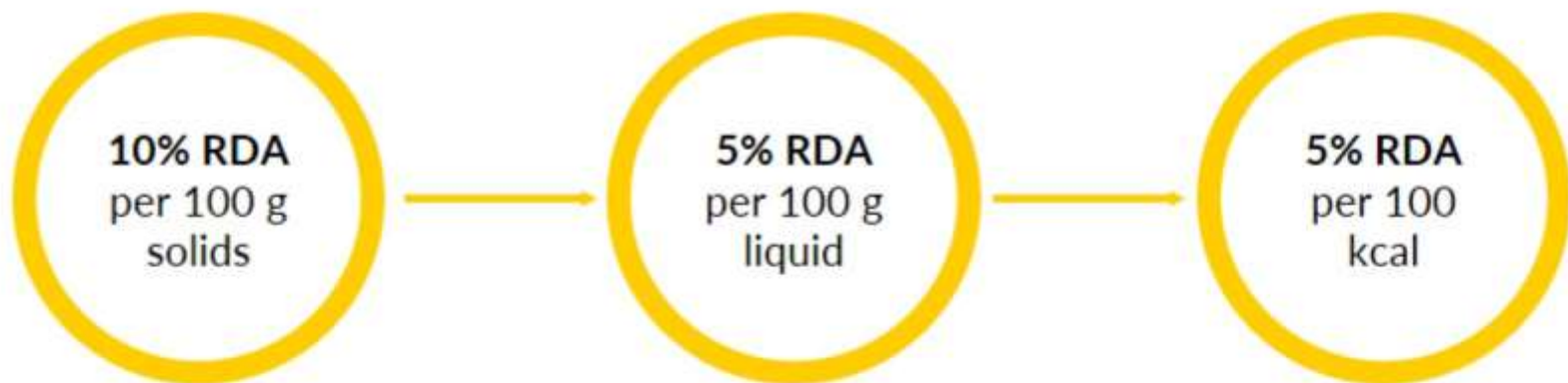


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“Protein Source” Claims

According to Advertisement Claims by FSSAI, a claim of “Source of Protein” for a product can be made if it has:

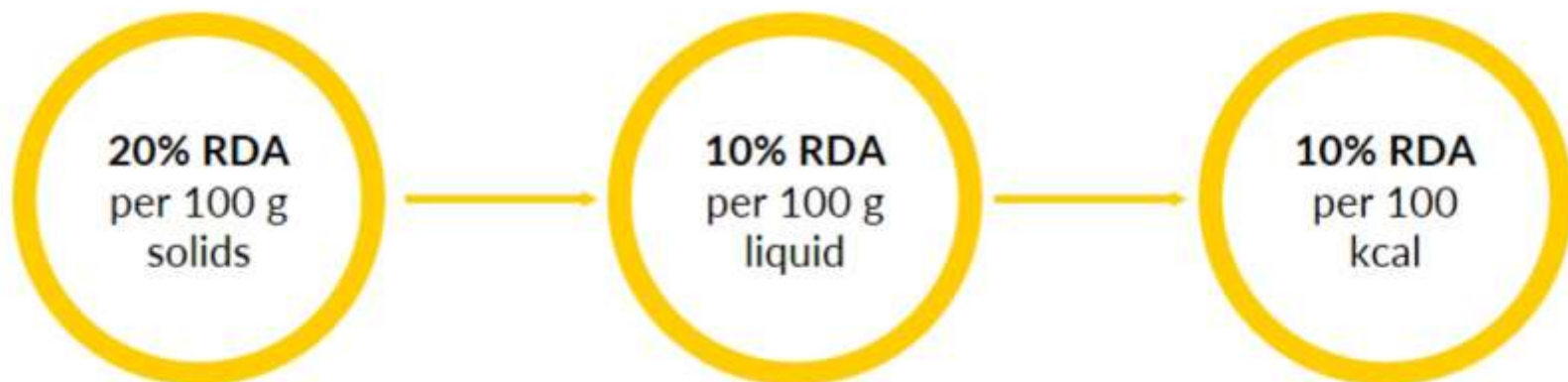


Recommended Dietary Allowance (RDA) for protein: 0.8 – 1.0 g per kg of body weight



“High Protein” Claims

According to Advertisement Claims by FSSAI, a claim of “High in Protein” or “Rich in Protein” for a product can be made if it has:



Recommended Dietary Allowance (RDA) for protein: 0.8 – 1.0 g per kg of body weight

Products

5

Available in the Market Today



High Protein Cookies

Ready to eat

Available in single packs for convenience

May contain ingredients like isolates and concentrates

30% protein

fulfilling around 54% RDA



Reference: Mindful Protein Cookies



Brands

MYPROTEIN



MINDFUL[®]
SUPERFOOD[™]

BY

eat[™]
Any Time



RiteBite

MAX
PROTEIN[®]



wellversed[™]
WELLNESS PERSONALIZED

sofit.



Protein Bars

Mainly designed for athletes

An “on the go” snack

Contains ingredients like Whey and nuts

20% protein

fulfilling around 36% RDA



Reference: Max Protein Bar



Brands

whole
The Truth



RiteBite

MAX
PROTEIN®

PROATHLIX®

Yoga
Bar™





Trail Mixes

Developed as a convenience snack for hikes

Healthy fats and proteins for energy and satiety

Combination of granola, dried fruits and nuts

15% protein

fulfilling around 27% RDA



Reference: True Elements Trail Mix



Brands



True
Elements

True to nature

Nutty Gritties™

THE GREEN 
SNACK
CO.



We started with
20% High Protein
Khakhras



Then came
**30% High Protein,
Gluten-free Thins**



Our Purpose

To make the planet and its people healthier

Healthier foods for a healthier you!

We aim to:



Rebalance
protein content



Reduce GI in
foods



Increase dietary
fiber



Sustainability



Enhance the
joy of eating

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Thanks!

For **feedback** and **comments**

You can reach out at

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