

Overcoming Health Hurdles with Proteins

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India's Health Status

1.3 billion people, the second highest population globally.

Life expectancy

> 67 years



Polio

Guinea Worm Disease

Yaws

Tetanus

In terms of NCDs, obesity and malnutrition, India still has a long way to go.

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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)

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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!

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Non-Communicable Diseases

- 1 in 4 Indians has a risk of dying from a NCD before they reach the age of 70.
- In a report by GOI, an increase in the contribution of NCDs from **30% of the total disease burden in 1990 to 55% in 2016**, and also an increase in proportion of deaths due to NCDs from **37% in 1990 to 61% in 2016** was reported.

5.8 m

people die from NCDs
each year in India

Diabetes in India

According to International Diabetes Federation,

- India is second in number of adults with diabetes and is anticipated to remain in the same place till 2045.



77 m

diabetic people
2019



101 m

diabetic people
2030

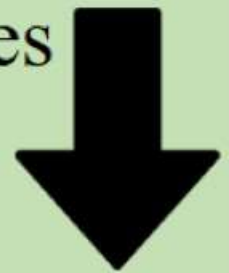
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Combating Diabetes

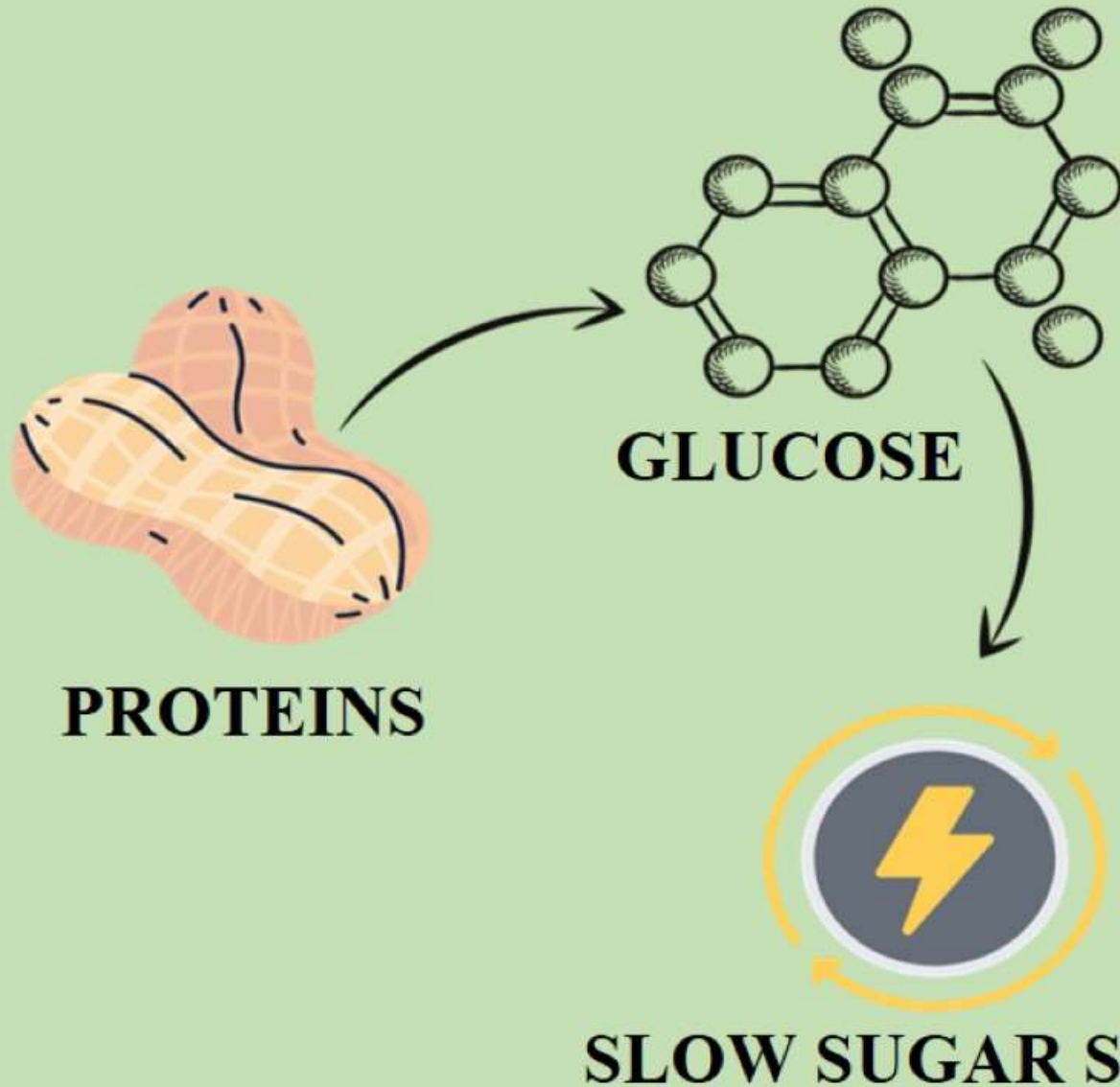
Protein
Fiber
Exercise



Simple Carbohydrates
Glycemic load
Starchy foods



Combating Diabetes



Gluconeogenesis
Proteins breakdown
into glucose
↓
Protein less efficient
to breakdown
↓
Blood glucose level
rises slowly

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Animal Protein & Diabetes



- Higher risk of Type 2 diabetes
- A portion of red meat or processed red meat leads to a rise in the risk of diabetes by 12% and 32%, respectively.



- No linkage found
- Replacing a serving of red meat with nuts or whole grains is linked to 16% to 35% lower risk of type 2 diabetes.

Cardio Vascular Diseases

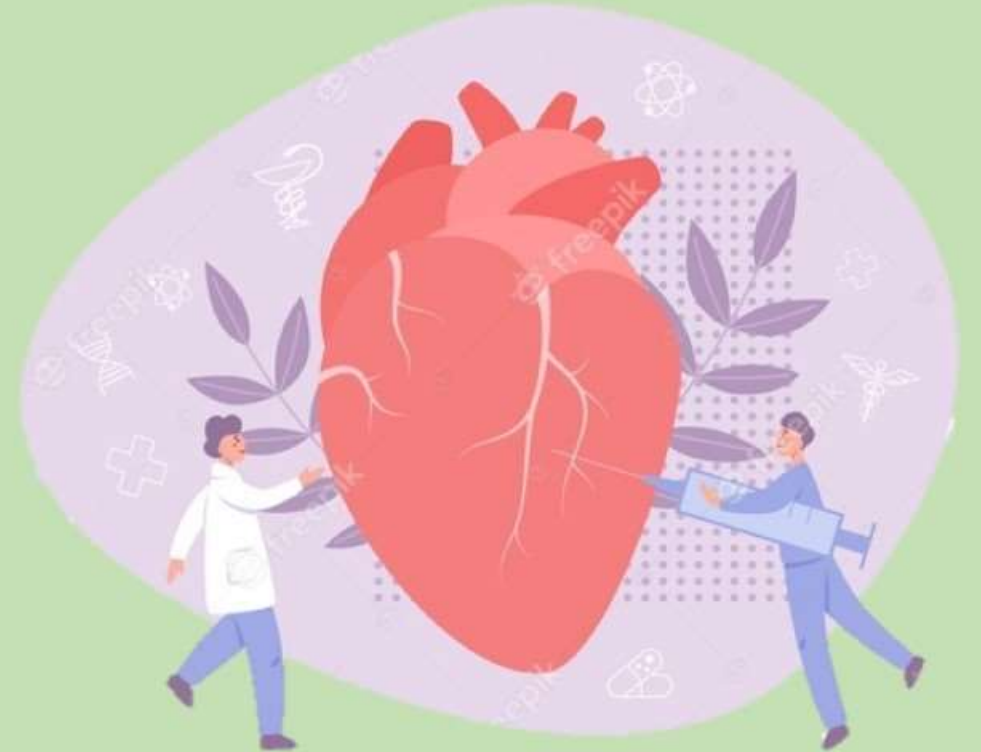
Leading cause of death in India

Risk of CAD in Indians is:

6x Chinese

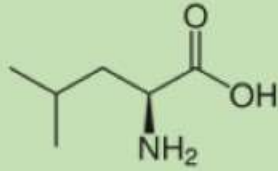
20x Japanese

CHD affects Indians 5-6 years earlier than Westerners



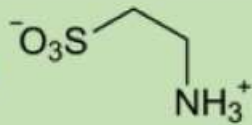
Role of Amino Acids

Leucine



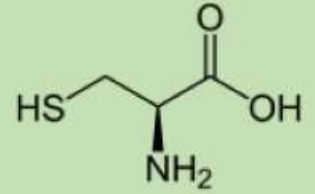
- Increases protein synthesis
- Improves insulin resistance
- Modulates hepatic gluconeogenesis

Taurine and Tryptophan



- Attenuate sympathetic nervous system activity

Cysteine, Arginine and Glutamate



Attenuate and prevent alterations like:

- Insulin resistance
- Decreased nitric oxide bioavailability
- Altered renin angiotensin system
- Increased oxidative stress
- Formation of advanced glycation end products

Plant Protein for Lowering Risk



Animal Protein

- Increased risk of heart diseases, and the risk of dying from CVD.
- More saturated fats, low level of trans fat also present
- Increase cholesterol in the diet —an established risk factor for heart disease.



Plant Protein

- Replacing red meat with plant protein sources reduces the risk of CVD
- More unsaturated fats, which lowers LDL cholesterol
- Cholesterol free

Cancer in India

2.25 m

estimated people living
with cancer

7,84,821

deaths from cancer in 2018

One woman dies out of cervical
cancer every 8 minutes

Protein Consumption during Cancer

Protein and energy requirements increase when a person undergoes cancer treatments.

Side effects of treatment include appetite loss, resulting in weight loss and breakdown of body's own supply of proteins for energy.

Eating enough protein can stop or slow this process.

It can help fight infections, heal wounds, maintain muscle mass helping in recovery from cancer treatment.

Protein intake should increase to 1.2 g of protein per kilogram of body weight, per day.

It is recommended to distribute your daily intake of protein over the day, instead of consuming a big meal. This helps to prevent the breakdown of protein in the body and promotes protein storage.

Aim for 20 to 30 g of protein in each meal, and 10 to 15 g protein in snacking.

Reducing Incidence of Cancer

- A *vegetarian diet* offered a **8% reduced risk of cancer**, while a *vegan diet* conferred a **15% reduced incidence** from cancer.
- Lifelong *soy consumption* offers the most protective effect, **reducing breast cancer risk by 50%**, compared to only a 25% risk reduction if soy is consumed beginning in adulthood.



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Building Immunity in Proteins

- A deficiency of dietary protein or amino acids impairs immune function and increases susceptibility to infectious diseases.
- Protein malnutrition reduces amino acid concentration in the blood plasma.
- Protein calorie malnutrition also impairs host immunity with detrimental effects on the T-cell system, resulting in increased chances of opportunistic infections (OIs), morbidity and mortality in patients.

Role of amino acids in immune responses:

1. Activation of T-lymphocytes, B-lymphocytes and macrophages
2. Production of antibodies, cytokines and cytotoxic substances
3. Regulation of cellular redox state, gene expression and lymphocyte proliferation

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%



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

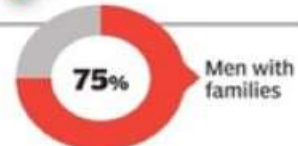
Working women and housewives found to be **70%-80%** protein deficient

By GEOGRAPHY



Of 6 cities surveyed, **Lucknow most protein deficient, Kolkata the least**

Men with families most protein deficient



Mothers



Single women



Single men



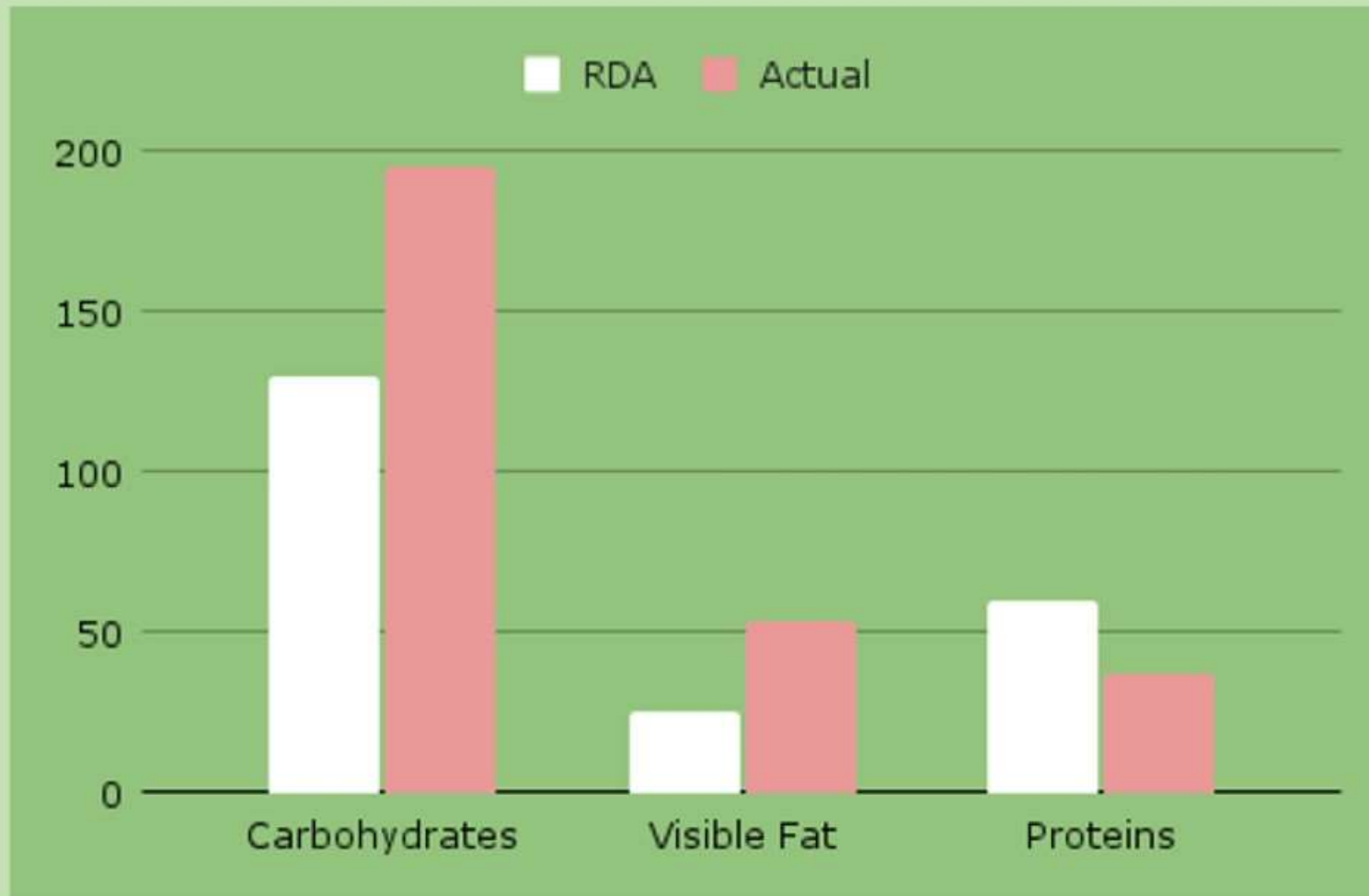
Children (10-15 yrs)



Source: IMRB's 'Understanding Protein Myths & Gaps among Indians' study

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RDA vs Actual Consumption



Source: Agrawal et. al, 2020

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Replace Fats & Carbs with Protein



FAT
9 cal/g energy



PROTEIN
4 cal/g energy

Benefits of Protein

**MUSCLE GROWTH
& STRENGTH**



**APPETITE
REDUCTION**



**STRONGER
IMMUNE SYSTEM**



**CONTROL BLOOD
PRESSURE**



**BODY AND TISSUE
REPAIRS**



HAIR AND SKIN



Sources of Protein

Animal based sources

MILK



EGG



FISH



MEAT



Plant based sources

NUTS



PULSES



SOYA



SEEDS



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Solution to PDCAAS Problem

The human body combines amino acids from multiple protein sources in a 24-hour period in order to activate protein synthesis

Animal based proteins may have a higher PDCAAS, but Plant based proteins can be combined to obtain a high PDCAAS score.



**Rice and
beans**



**Tahini and
hummus**



**Oatmeal and peanut
butter**

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Why Plant-based Diet?

- Prevents lifestyle disorders
- Supports your immune system
- Compassion towards fellow beings
- Reduces green house gas emissions
- Reduces water use



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

Reduce the disease burden in the country

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What We've Done So Far

Launched high protein snacks

We started with
**20% High Protein
Khakhras**



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



Sustainable Future with Proteins

- Refined carbohydrate containing foods have always been people's first choice for getting a quick jolt of energy. And due to this, people's health has taken a toll.
- People have started to realize that they need a “slow burning fuel” to keep them satiated for longer times and doesn't contribute to incidence of various diseases.
- Replacing refined carbohydrates and fats in the diet with plant-based protein is the key to ensuring one's health and ensuring a sustainable future.

Thank you for your attention!

For ideas, comments and feedback,
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