Increasing Protein Consumption In Daily Diet

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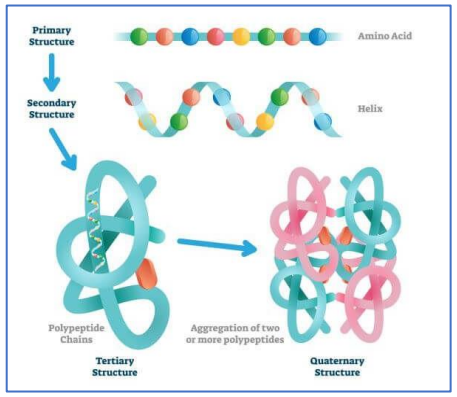
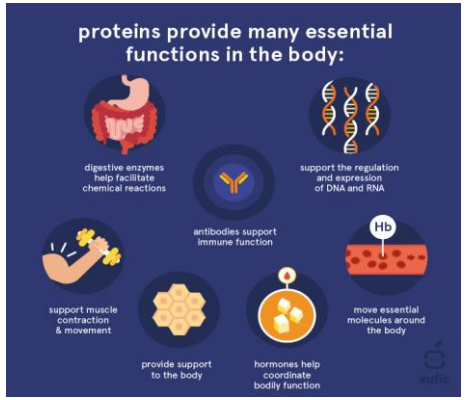
The Curious Case Of Proteins

What



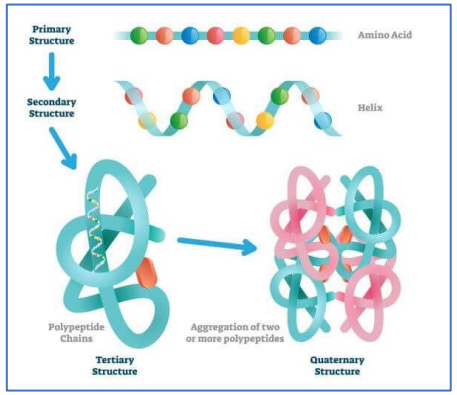
Why



How

The Curious Case Of Proteins

What



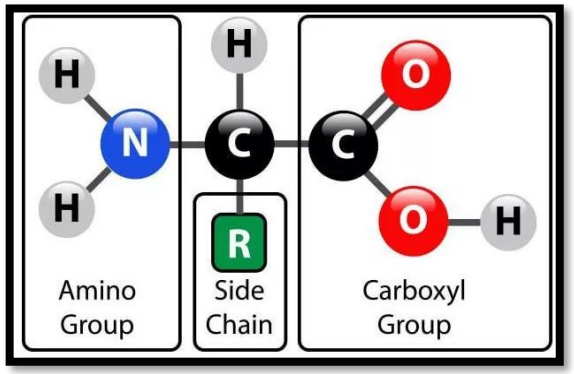
- What are Proteins
- What is quantity vs quality of proteins
- What is the fate of proteins post consumption

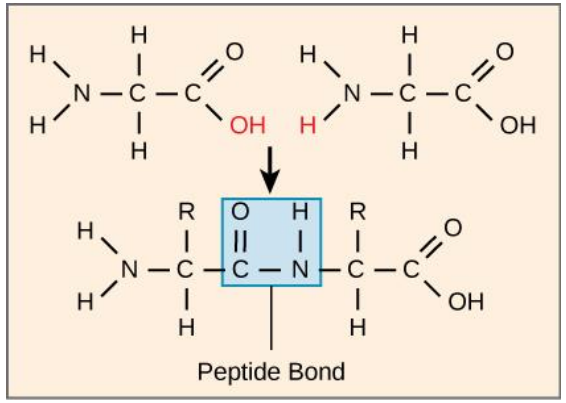
Proteins

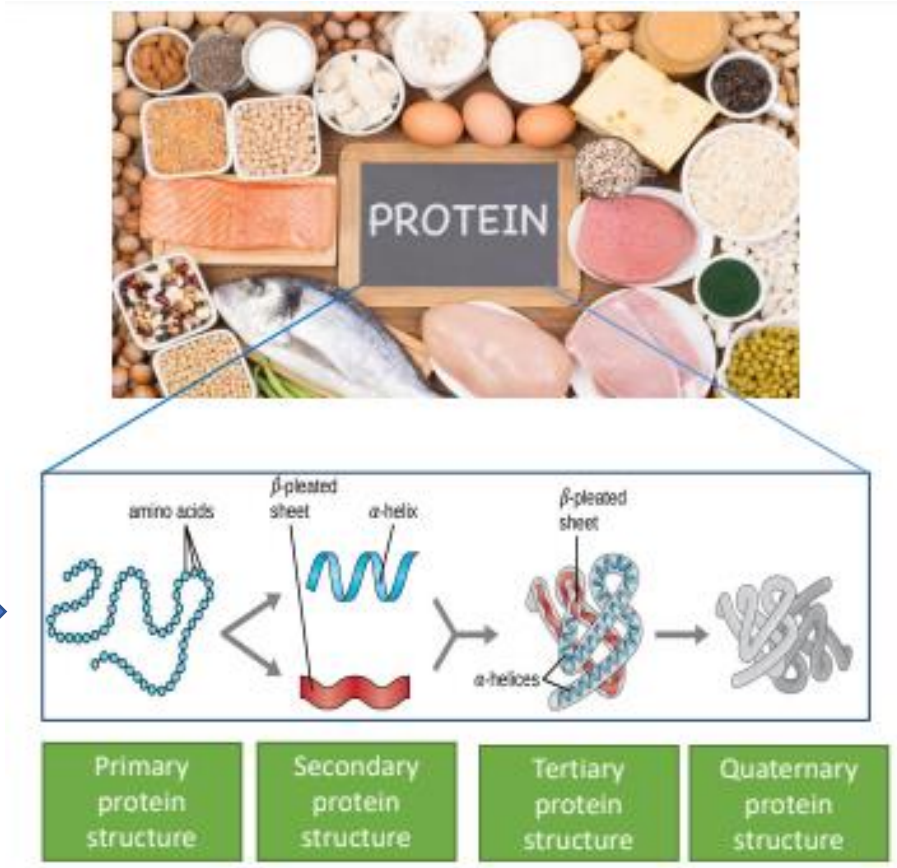
DID YOU KNOW?

The term '**PROTEIN**' is derived from the Greek word- '**PROTEOIS'** which means taking first place, as proteins form fundamental basis of structure and function of life.

Proteins are one of the macronutrients that are composed of carbon, hydrogen, oxygen, nitrogen and sulphur in varying amounts



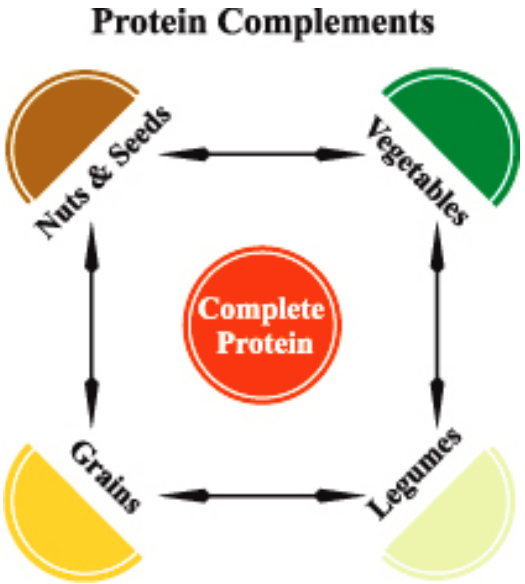




Nutritional Classification of Proteins

Essential amino acid	Conditionally Essential	Non – Essential
Histidine	Arginine	Alanine
Isoleucine	Cysteine	Asparagine
Methionine	Glycine	Aspartic acid
Lysine	Proline	Glutamic acid
Phenylalanine	Tyrosine	Glutamine
Threonine		Serine
Leucine		
Valine		
Tryptophan		

Complete proteins	Partially complete proteins	Incomplete proteins
These proteins have all the nine essential amino acids in the required proportion by the human body to promote good growth	These proteins are partially lacking one or more essential amino acids and hence can promote moderate growth.	These proteins completely lack one or more essential amino acids. Hence, they do not promote growth at all
Egg, milk, chicken soya	Wheat and rice (Lys,Thr)	Gelatin (Trp) Zein (Trp, Lys)



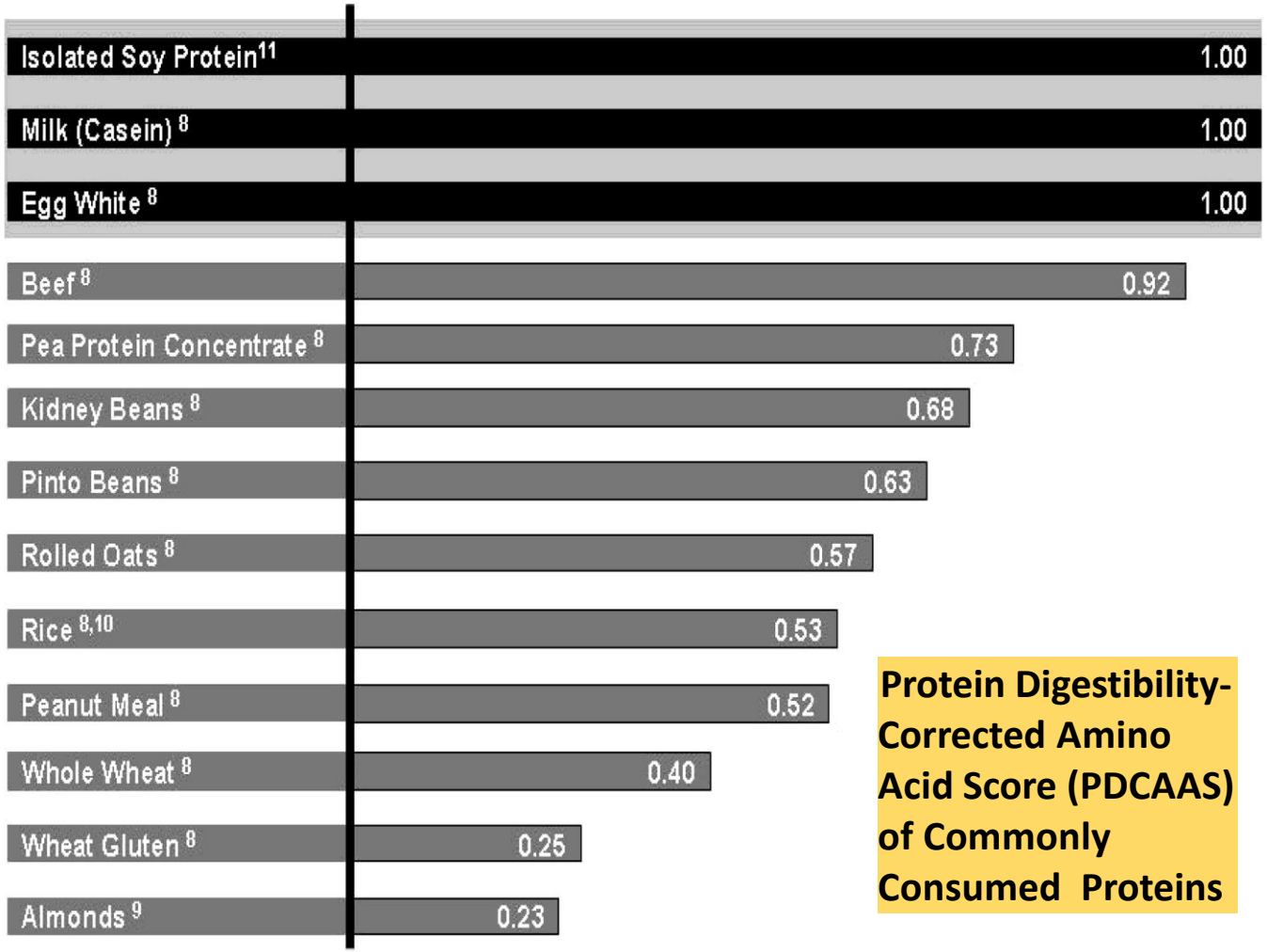
Quality Of Protein

Protein Digestibility Corrected Amino Acid Score (PDCAAS)

In 1989, the Joint WHO/FAO consultation suggested protein quality could be assessed adequately by expressing the contents of first limiting amino acids of the test protein compared to the same amino acid in the reference protein.

PDCAAS = True or apparent faecal digestibility * Ratio of limiting amino acids.

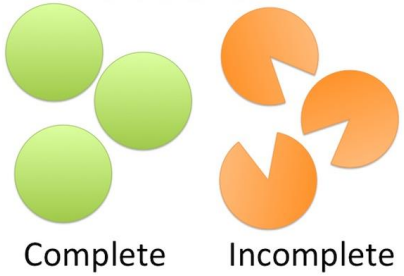
Highest possible score is 1



Protein Digestibility-Corrected Amino Acid Score (PDCAAS) of Commonly Consumed Proteins

Adapted from Hughes et. al. *J. Agric. Food Chem*

Quality Of Protein



- High quality proteins contain all the essential amino acids in the right proportions to support maintenance & development of our body
- High quality proteins have good bioavailability and are completely digested

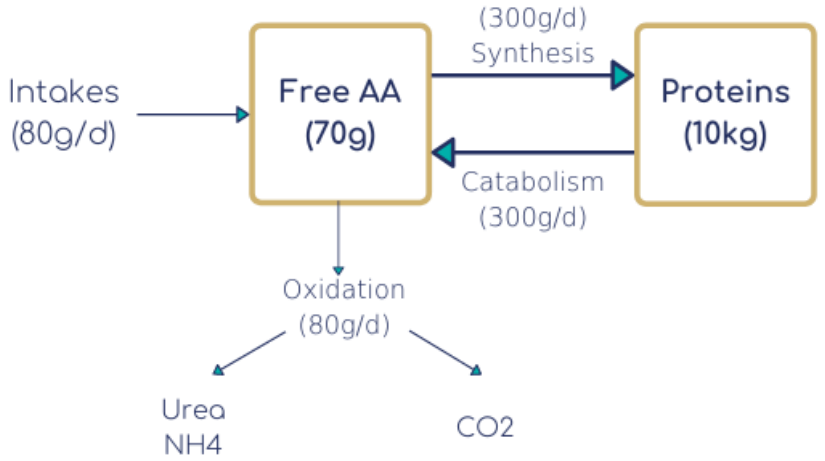
- Animal proteins are considered complete proteins whereas most of the plant sources are lacking in one or more of the essential amino acids and are considered partially complete or incomplete sources of protein and lower in quality

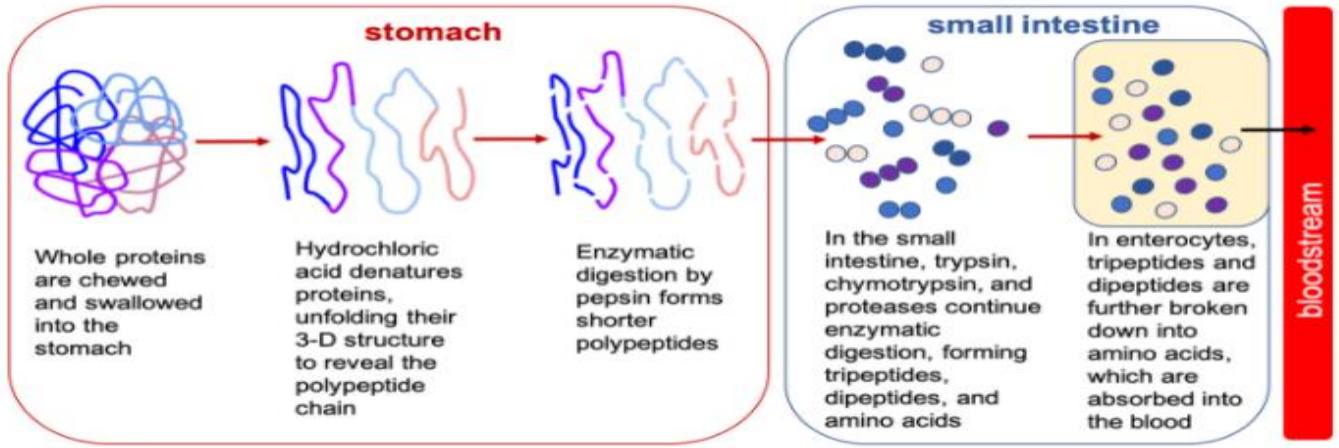
But not all plant proteins

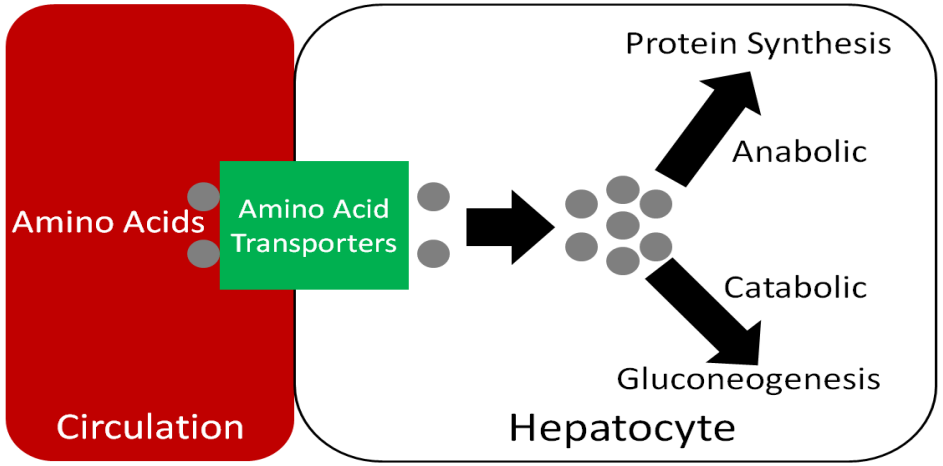
Soy protein is the only commercially viable plant protein source that is also considered to be high quality

Fate Of Proteins Post Consumption (1/2)

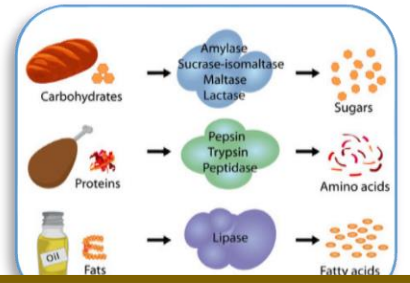
- Proteins in the body undergo constant synthesis and degradation.
- In normal conditions, there is an internal balance between food intake, synthesis by the body and excretion - **“nitrogen balance”**
- This balance is achieved if the quantity of nitrogen ingested equals urinary, fecal and skin losses.





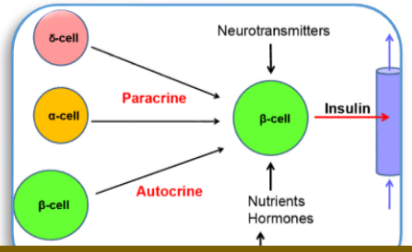


Fate Of Proteins Post Consumption (2/2)

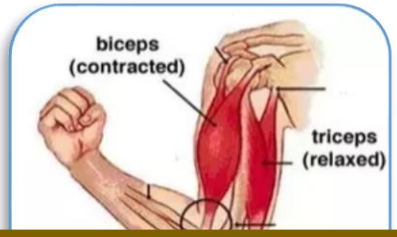


Synthesizing enzymes

Forming hemoglobin

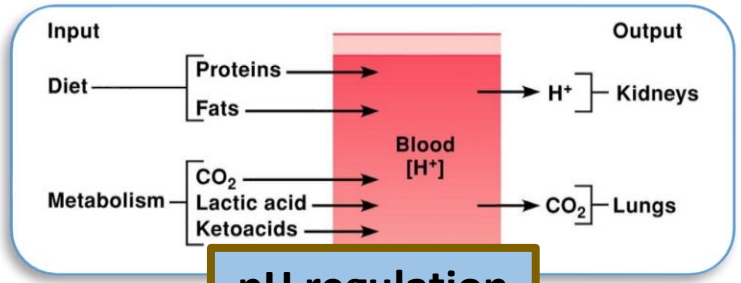


Synthesizing hormones

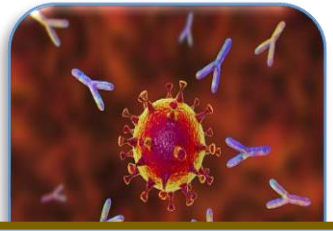


Muscle repair and maintenance

Energy



pH regulation

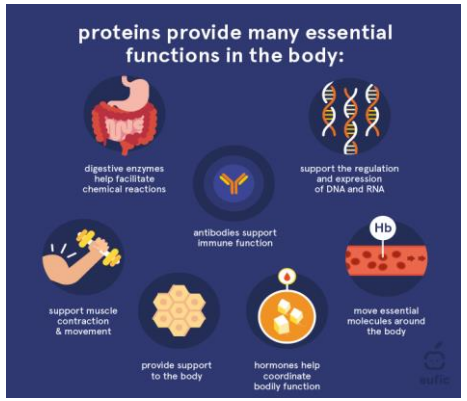


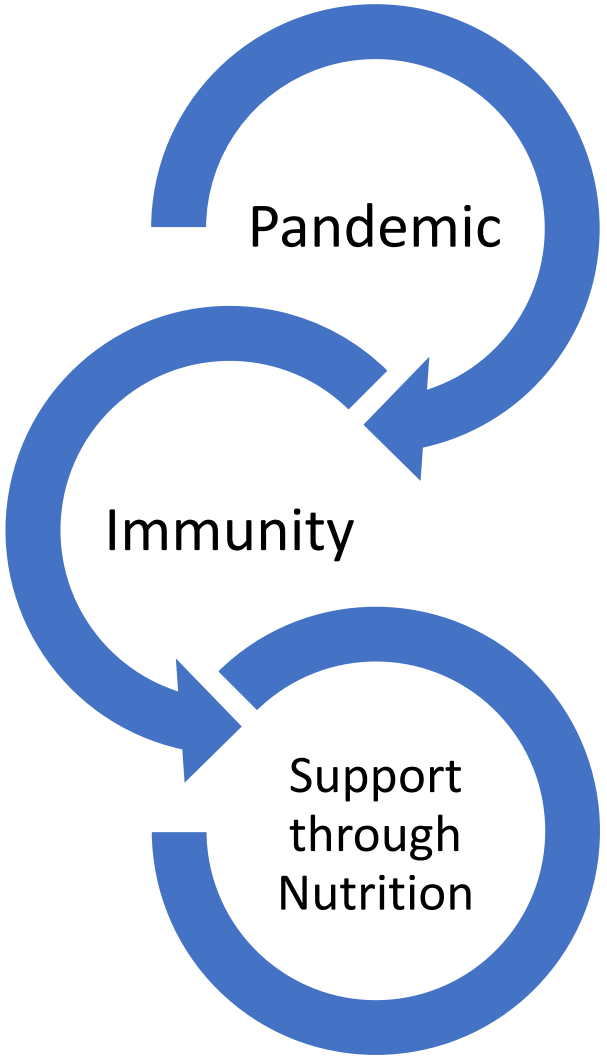
Forming antibodies

What | Why | How

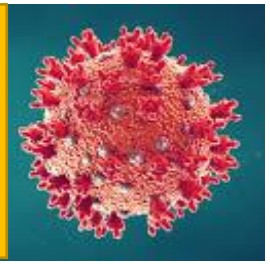
The Curious Case Of Proteins

Why





The Pandemic brought public health concerns into the spotlight



Boosting Immunity became the primary goal

Supporting Immune system with good Nutrition

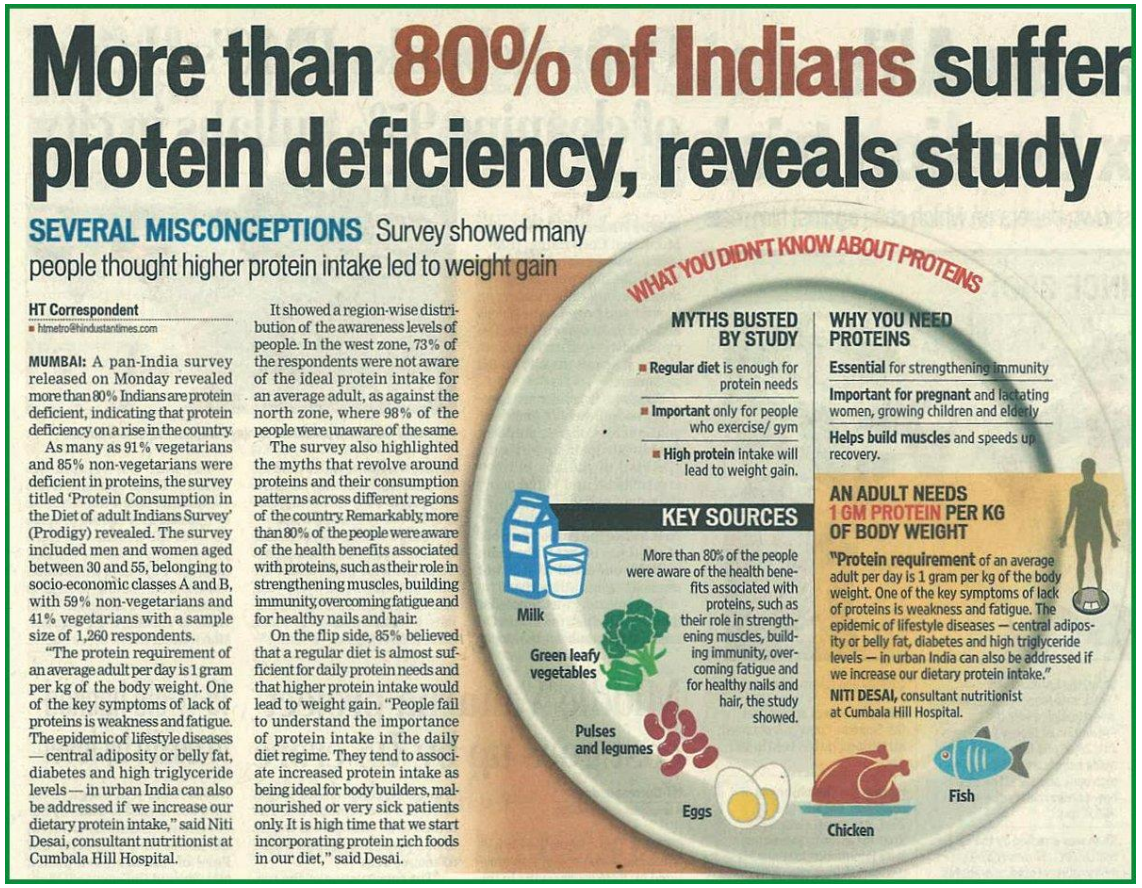
Protein – The Need of The Hour

Various surveys and studies have revealed that India's protein consumption is much lower than the recommended intake by the Indian Council of Medical Research (ICMR).

- RDA for an average Indian adult is **0.8 to 1 gm per kg body weight**
- The average intake is about **0.6 gm per kg body weight**

According to the Protein Consumption in Diet of Adult Indians: A General Consumer Survey (PRODIGY) conducted by IMBR in 7 cities, including 1,260 respondents

- 9 out of 10 Indians do not get the **right amount of protein** in their diet every day.
- > 75% Respondent were not aware of the ideal protein intake.



More than 80% of Indians suffer protein deficiency, reveals study

SEVERAL MISCONCEPTIONS Survey showed many people thought higher protein intake led to weight gain

HT Correspondent
htmetro@hindustantimes.com

MUMBAI: A pan-India survey released on Monday revealed more than 80% Indians are protein deficient, indicating that protein deficiency on a rise in the country.

As many as 91% vegetarians and 85% non-vegetarians were deficient in proteins, the survey titled 'Protein Consumption in the Diet of adult Indians Survey' (Prodigy) revealed. The survey included men and women aged between 30 and 55, belonging to socio-economic classes A and B, with 59% non-vegetarians and 41% vegetarians with a sample size of 1,260 respondents.

"The protein requirement of an average adult per day is 1 gram per kg of the body weight. One of the key symptoms of lack of proteins is weakness and fatigue. The epidemic of lifestyle diseases — central adiposity or belly fat, diabetes and high triglyceride levels — in urban India can also be addressed if we increase our dietary protein intake," said Niti Desai, consultant nutritionist at Cumbala Hill Hospital.

It showed a region-wise distribution of the awareness levels of people. In the west zone, 73% of the respondents were not aware of the ideal protein intake for an average adult, as against the north zone, where 98% of the people were unaware of the same.

The survey also highlighted the myths that revolve around proteins and their consumption patterns across different regions of the country. Remarkably, more than 80% of the people were aware of the health benefits associated with proteins, such as their role in strengthening muscles, building immunity, overcoming fatigue and for healthy nails and hair.

On the flip side, 85% believed that a regular diet is almost sufficient for daily protein needs and that higher protein intake would lead to weight gain. "People fail to understand the importance of protein intake in the daily diet regime. They tend to associate increased protein intake as being ideal for body builders, malnourished or very sick patients only. It is high time that we start incorporating protein rich foods in our diet," said Desai.

WHAT YOU DIDN'T KNOW ABOUT PROTEINS

MYTHS BUSTED BY STUDY
- **Regular diet** is enough for protein needs
- **Important** only for people who exercise/ gym
- **High protein** intake will lead to weight gain.

WHY YOU NEED PROTEINS
- **Essential** for strengthening immunity
- **Important for pregnant** and lactating women, growing children and elderly
- **Helps build muscles** and speeds up recovery.

KEY SOURCES

More than 80% of the people were aware of the health benefits associated with proteins, such as their role in strengthening muscles, building immunity, overcoming fatigue and for healthy nails and hair, the study showed.

Milk
Green leafy vegetables
Pulses and legumes
Eggs
Chicken
Fish

AN ADULT NEEDS 1 GM PROTEIN PER KG OF BODY WEIGHT

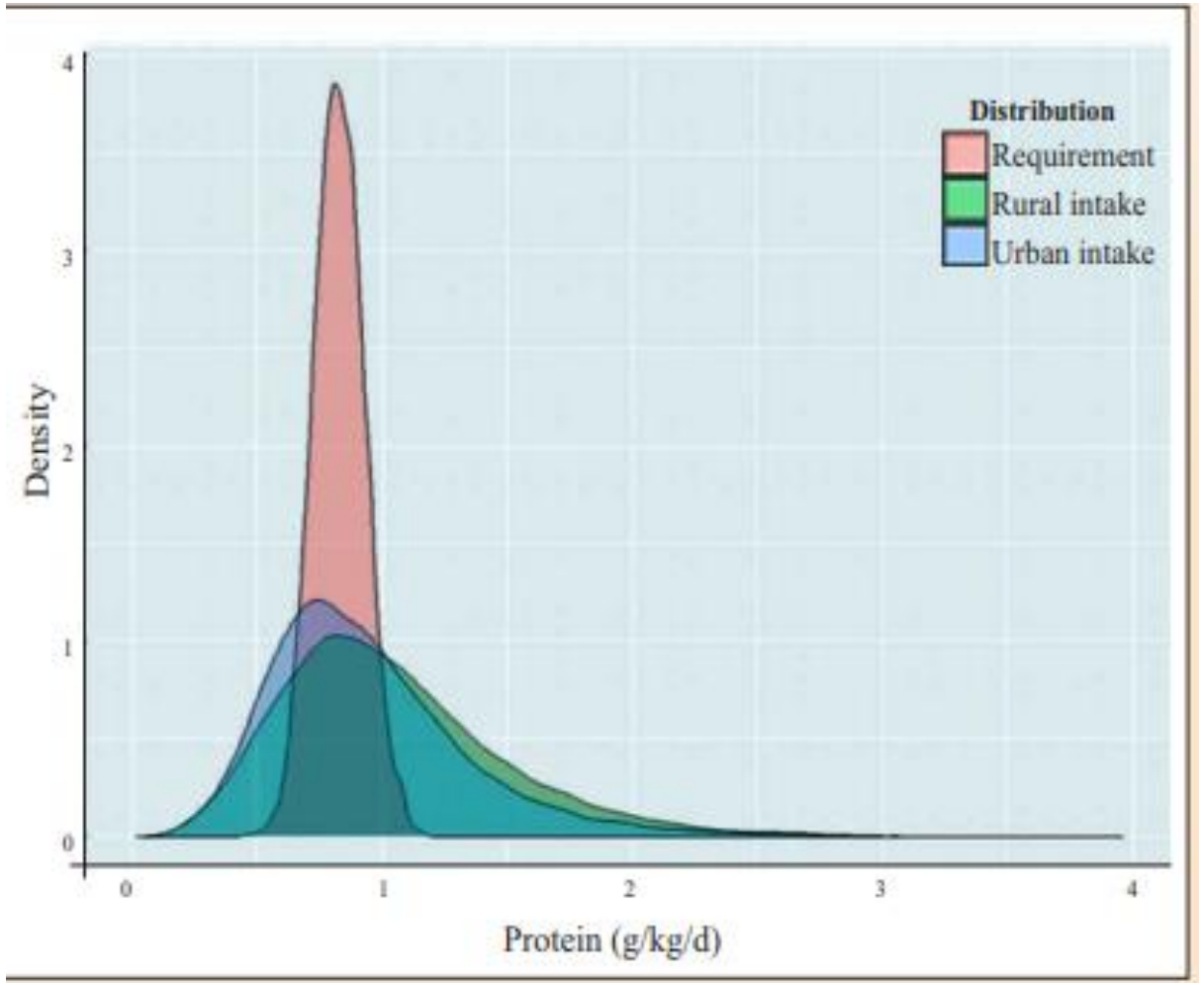
"Protein requirement of an average adult per day is 1 gram per kg of the body weight. One of the key symptoms of lack of proteins is weakness and fatigue. The epidemic of lifestyle diseases — central adiposity or belly fat, diabetes and high triglyceride levels — in urban India can also be addressed if we increase our dietary protein intake."

NITI DESAI, consultant nutritionist at Cumbala Hill Hospital.

Protein Consumption In India

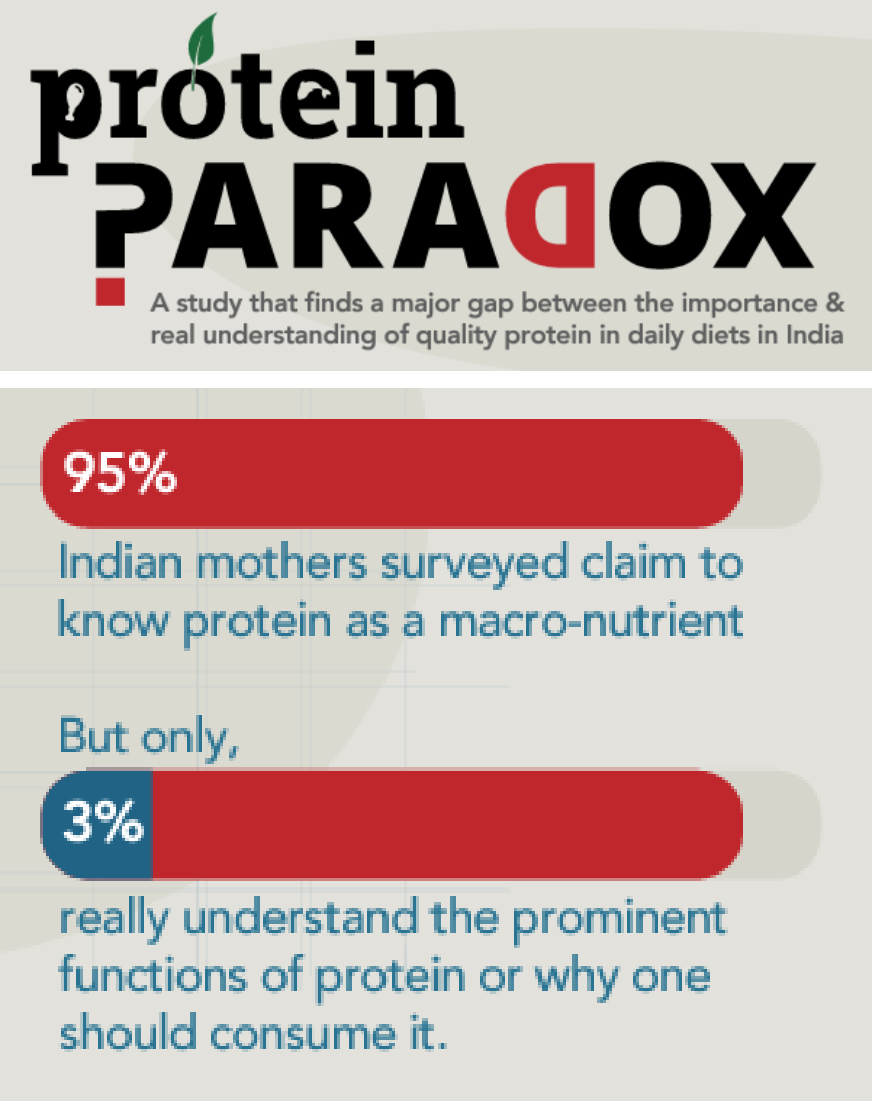
Intake and reference distribution of protein (g/kg/d) in rural and urban population

- The probability of protein inadequacy based on requirement distribution ranged from 36% to 44% among rural and urban population respectively (Figure).
- Even among those population where the total protein intake appears to be adequate in terms of quantity and PE ratio, the **protein quality** was poor across various regions in India.
- A minimum of 66% of total protein should come from pulses, beans, milk, flesh foods and nuts as per the recommendation of ICMR-NIN.



Ref – what india eats report, 2020

Why does India have Low Protein Consumption?



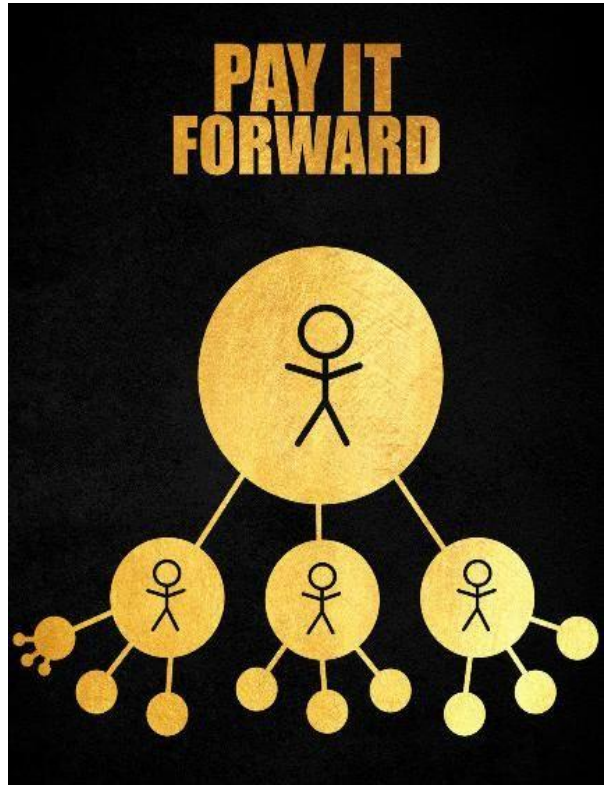
- Right To Protein, a nationwide public health awareness initiative, released the findings of a study that uncovers a paradox in India's daily protein consumption habits.
- While protein awareness exists, there is a low knowledge of protein sources which is causing poor protein consumption in Indian households

https://righttoprotein.com/initiative/protein-paradox.html

The Curious Case Of Proteins

How

- How to increase protein consumption in daily diet



General Consumption Items Throughout the Day



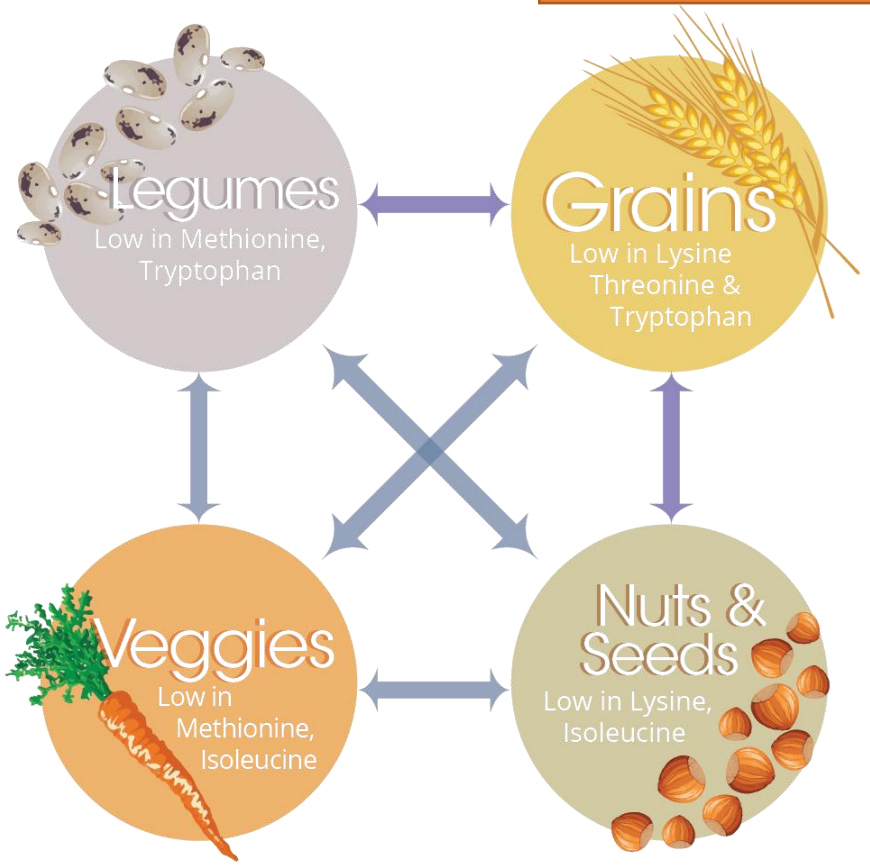



Pre-Breakfast	Breakfast	Mid-Morning/Pre-Lunch	Lunch	Tea-Time	Dinner

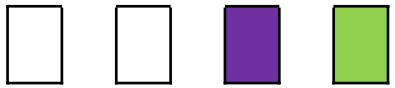
• Biscuits/ cookies
• Tea/Coffee
	• Traditional breakfast (upma, paratha, poha, idli, dosa etc)
	• Cereals - cold
	• Cereals - oats
	• Fruits
	• Egg
	• Milk
		• Biscuits/ cookies
		• Fruits
			• Staples
			  • Chapati
			  • Rice
			  • Dal
			• Ready-to-cook meal (Khichdi/ Sambhar rice etc.)
			• Noodles
			• Veg/Nonveg curries
			• Sweets
				• Biscuits/ cookies
				• Ready-to-eat snacks / namkeen
				• Tea/Coffee
					• Staples
					  • Chapati
					  • Rice
					• Ready-to-cook meal (Khichdi/ Sambhar rice etc.)
					• Noodles
					• Veg/Non veg options
					• Sweets
					• Milk

Protein Enrichment Of Food

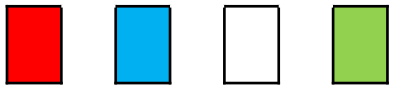
Protein Improvements – Blend Different Sources



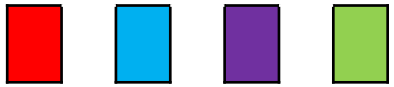
https://rancholapuerta.com/wheres-the-protein/



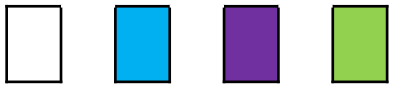
Rice
Oats
Whole wheat
Corn



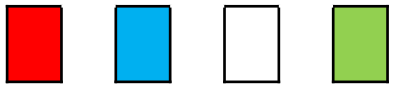
Beans
Dal
Peanut
Chickpea
Peas



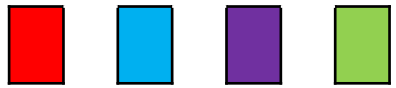
1. Rice & Beans
2. Khichdi
3. Rice dal
4. Oats + Peanut Butter
5. Bread + Peanut butter
6. Hummus + Pitta bread
7. Corn and Peas salad



Pumpkin Seeds



Peanuts



Trail mix

LYSINE THREONINE METHIONINE OTHER AMINO ACIDS

Certain Ways To Eat More Protein

- **Start your day with protein:** Starting your day with protein can help you achieve your daily protein intake goals. Focus on high-protein breakfast options like eggs, protein shakes, or Greek yoghurt
- **Eat proteins before carbs:** Findings of a small 2015 study suggest that eating protein before carbohydrates could help with maintaining a healthy blood sugar level.
- **Choose fats that contain protein:** A serving of peanut butter (two tablespoons) contains 8g of protein, while avocados contain around 4g of protein.

Certain Ways To Eat More Protein

- **Include protein-rich foods in every meal**: Research shows that protein has a satiating effect on appetite, helping people to feel fuller for longer. This is, in part, because protein decreases levels of the hunger hormone ghrelin. A 2015 review found that consuming **25–30 g of protein at every meal** can help regulate the appetite and facilitate weight management.
- **Eat more dairy products** : Also, according to a 2015 review (*Nutrition Reviews*, Volume 73,), consumption of milk and yogurt could prevent overeating and assist weight loss. They increase the concentrations of the hormones glucagon-like peptide-1 and peptide YY, which signal to the brain that the stomach is full.

Certain Ways To Eat More Protein

- **Add seeds for extra protein:** Chia seeds contain almost 5g of protein per tablespoon, flaxseeds and hemp seeds contain about 3g per tablespoon.
- **Choose veggies that are high in protein:** Broccoli, corn, asparagus, peas and artichokes contain between 3-5g of protein per cup
- **Add protein supplements for a snack :** Supplements are a quick and convenient option that can be useful for people who struggle to get enough protein from their diet.

Product Choices Available In The Market

Category[↑ Growth]	Potential delivery formats
Snacks	Dal/Veggie chips
	Protein bars
	Roasted Oats/balls/clusters/Granola bites
	Trail mixes/ Nut mixes
Baked goods	Brown rice/oat crackers/High protein Rusk
	Waffles
Meals	Dal wada/Veg meatballs/Manchurian balls
	Retorted thick lentil soup/Bean soup
	Falafel
Dips, spreads and Nut butters	Hummus & Tahini
	Cream cheese spread, Peanut butter
RTD	Malted food drinks, Shakes


THANK YOU!