

PROTEINS FOR IMMUNITY & RECOVERY



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Agenda of the Presentation

- ❖ Overview
- ❖ Proteins (Plant vs Animal)
- ❖ Role of Protein in immunity
- ❖ Role of Proteins in convalescence



9 of 10 Indians lack adequate protein, Mumbaiers score high

TNN | Jun 3, 2015, 03:44 AM IST



Protein consumption in India's 12 major cities and states, as per a survey conducted by IMRB. (Graphic by ANI)

MUMBAI: The typical Indian meal, whether served in a home in Mumbai or Delhi, is woefully deficient on proteins, said a survey released on Monday.

The Protein Consumption in the Diet of Adult Indians Survey, a multi-city survey, which was conducted by IMRB interviewing 1,260 Indians, said nine out of

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-to-do and the protein myths they believe.

Myths about protein sources...
70% of people believe that protein is only found in meat and fish.
73% of people believe that protein is only found in meat and fish.
20% of people believe that protein is only found in meat and fish.



Missing India's high deficiency levels
By occupation:
- 70% of parents
- 84% of students
- 97% of people with low protein intake

High deficiency levels
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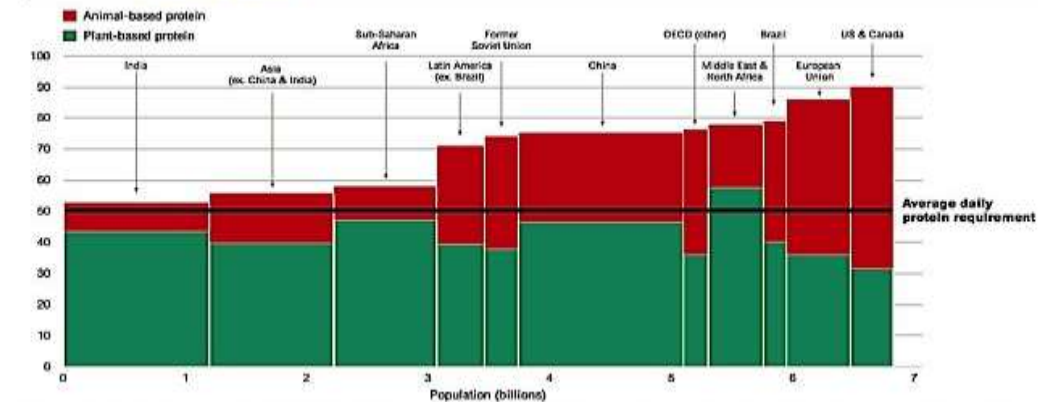
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Figure ES-1 | Protein Consumption Exceeds Average Estimated Daily Requirements in All the World's Regions, and is Highest in Developed Countries q/capita/day, 2009



Source: GlobAgri model with source data from FAO (2015) and FAO (2011a). Width of bars is proportional to each region's population. Average daily protein requirement of 50 g/day is based on an average adult body weight of 62 kg (Walpole et al., 2012) and recommended protein intake of 0.8 g/kg body weight/day (Paul 1989). Individuals' energy requirements vary depending on age, gender, height, weight, pregnancy/lactation, and level of physical activity.



Home / Forbes India Blogs / Getting / Indians are protein deficient, and it needs immediate attention

Indians are protein deficient, and it needs immediate attention

A nation needs to have a strong foundation and with high quality and quantity of proteins in a balanced diet, India can favourably enhance its chances of staying healthy.

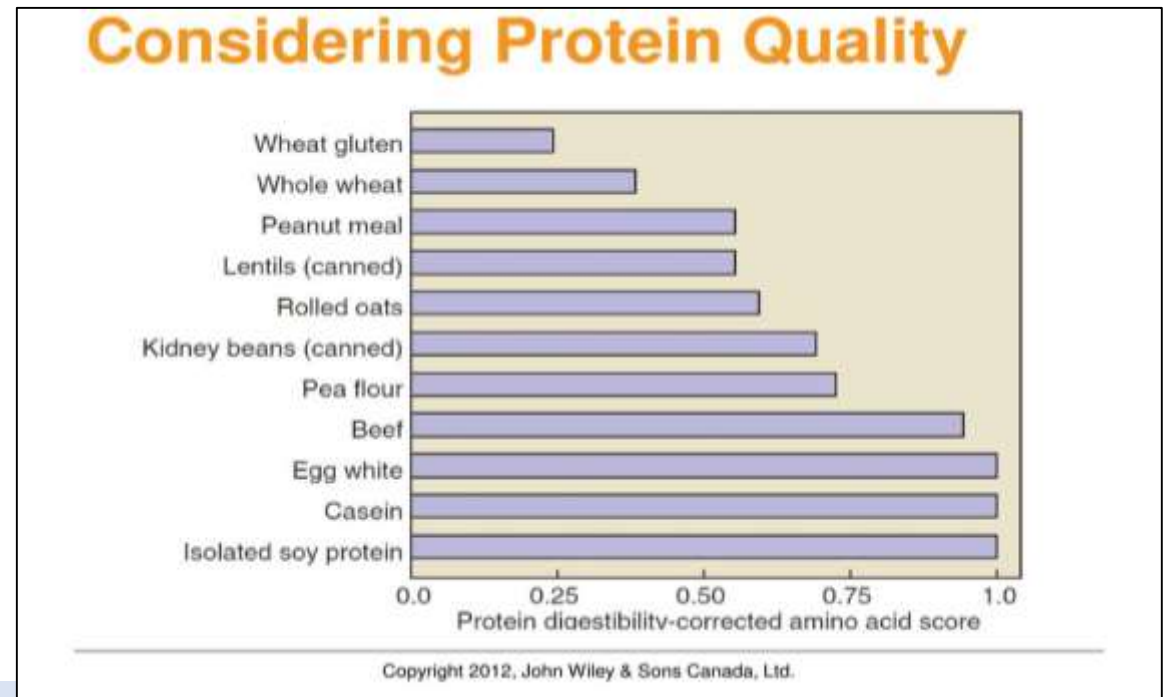
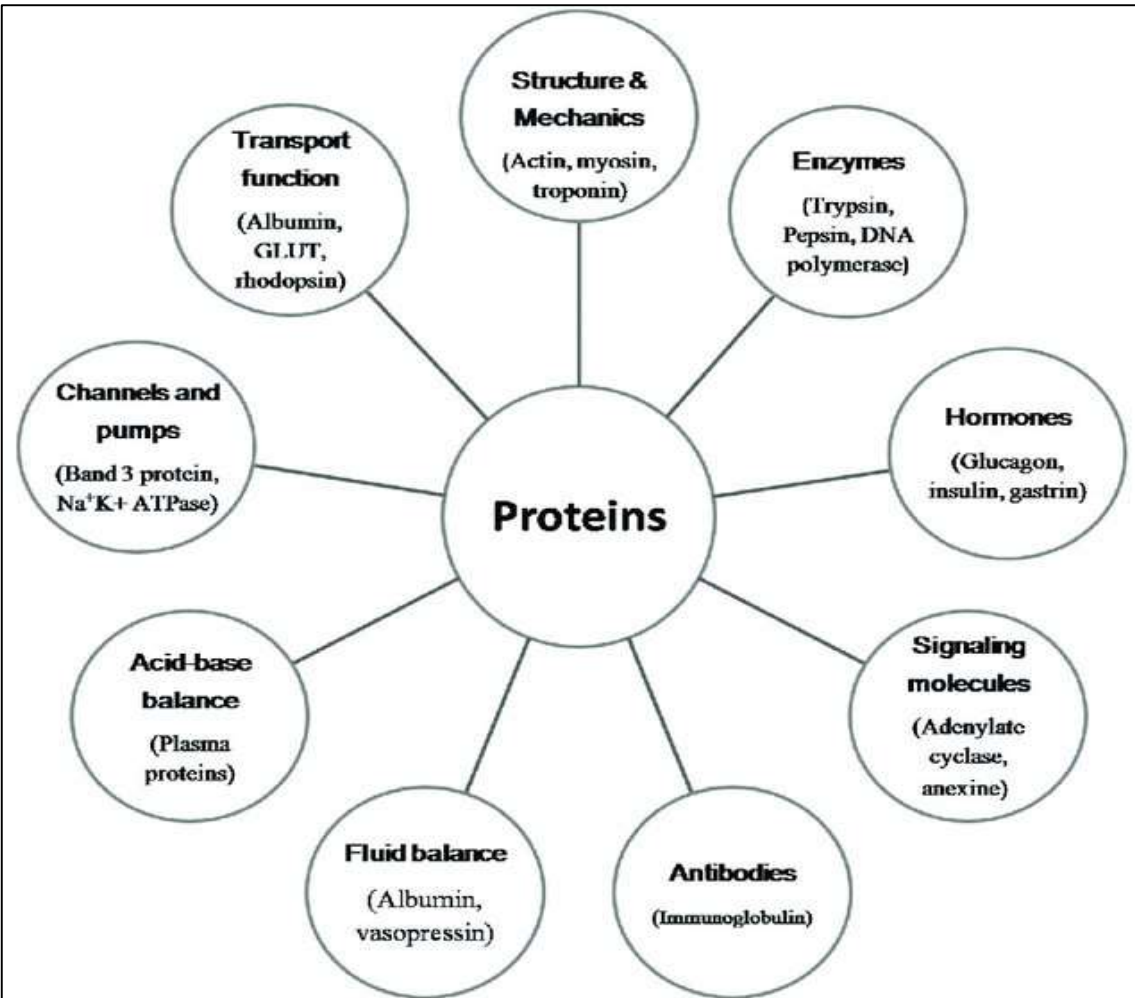
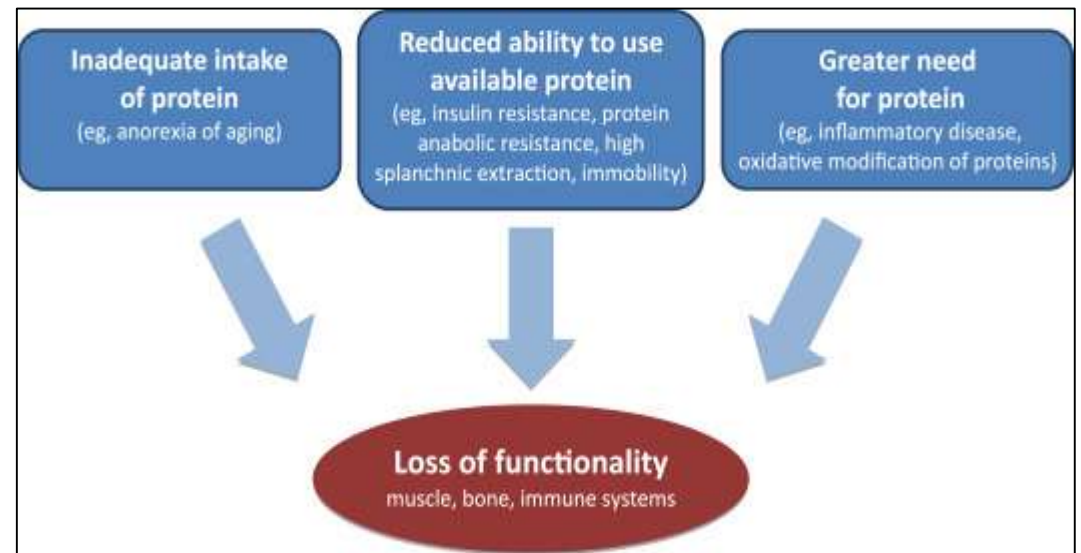
More than 80% of Indians suffer protein deficiency, reveals study

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

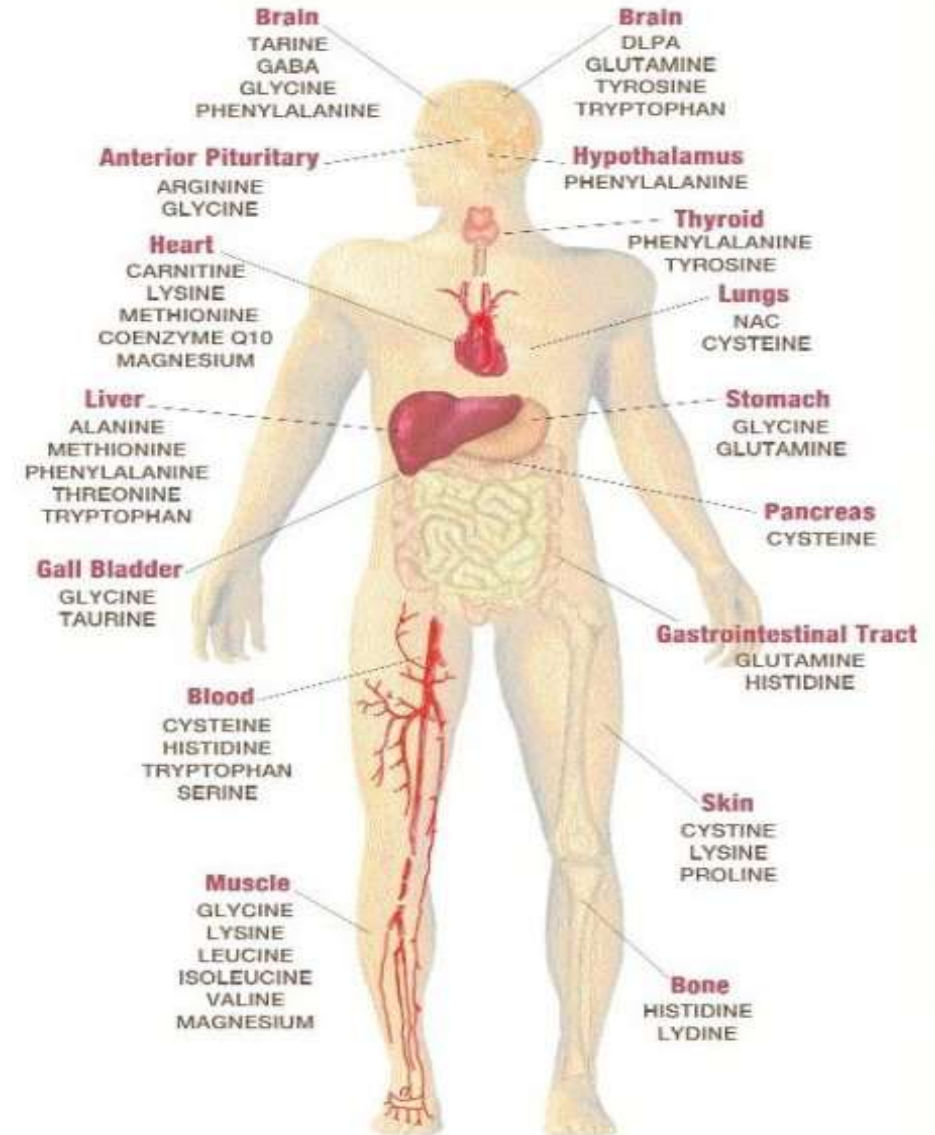
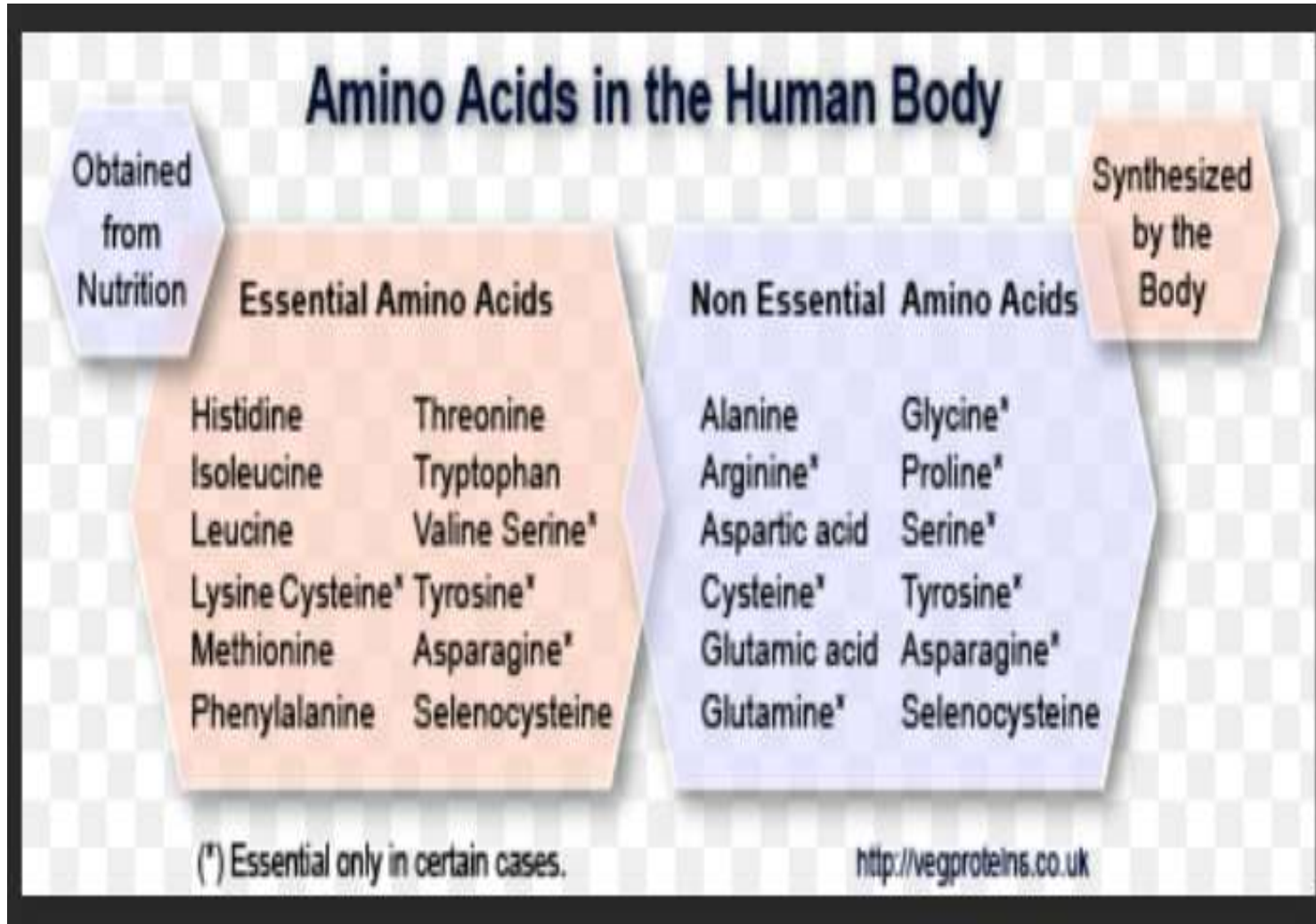


Protein deficiency is it an epidemic ?

Why Protein is not much talked about/ rather poor awareness!

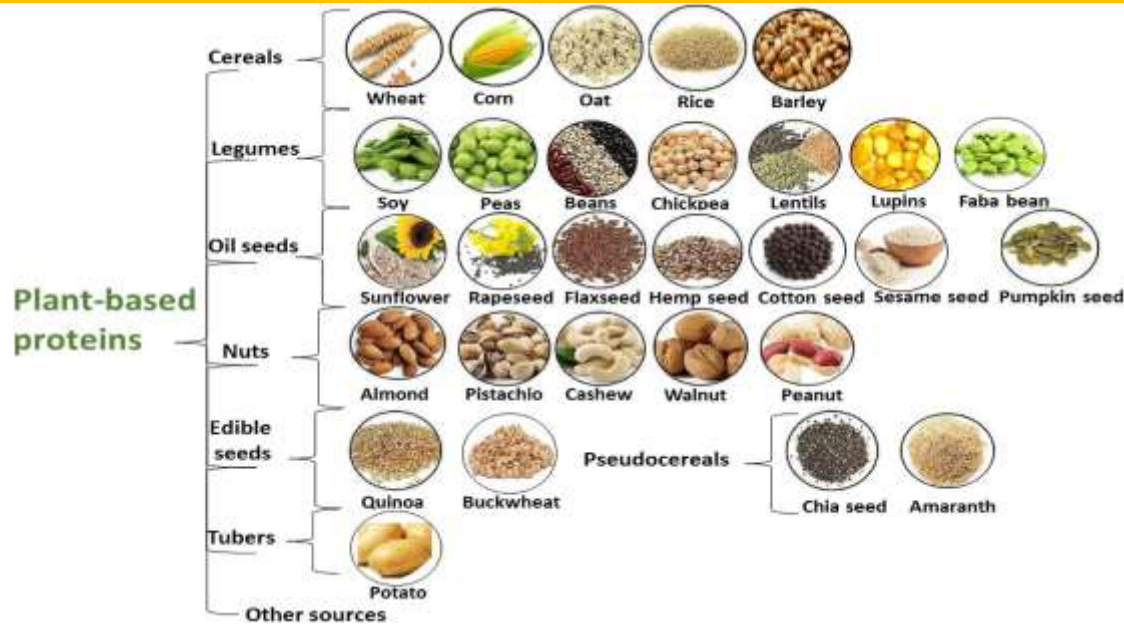


Proteins & Amino acids



Source: Healing with Amino Acids, Pain and Stress Publications 1998.

Advantages of Plant protein versus Animal protein, which is better?



- ❖ Reduces ill effects –saturated fat and cholesterol
- ❖ Higher sustainability from the environmental and agricultural point of view.
- ❖ lower incidence of infection and contamination
- ❖ less cultural and religious food habit limitations
- ❖ Driven by consumers and environmental

concerns

ORIGINAL RESEARCH

Nutritional Epidemiology and Public Health

CURRENT DEVELOPMENTS IN NUTRITION

Dietary Protein and Changes in Biomarkers of Inflammation and Oxidative Stress in the Framingham Heart Study Offspring Cohort

Adela Hruby and Paul F Jacques

Nutritional Epidemiology, Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, and Tufts University Friedman School of Nutrition Science and Policy, Boston, MA

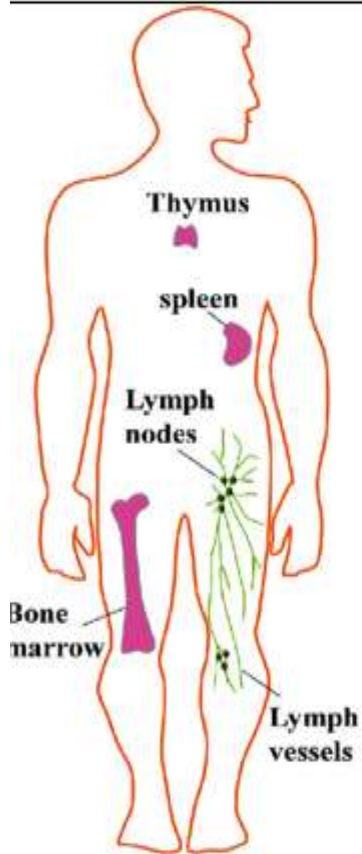
Curr Dev Nutr 2019;3:nzz019.

Dietary intake	Model ³	Quartile category of protein intake ²				P-trend
		Q1	Q2	Q3	Q4	
Protein, g/d	1	0.766 ± 0.172	0.575 ± 0.176	0.369 ± 0.179	0.310 ± 0.185	0.02
	2	0.839 ± 0.258	0.598 ± 0.252	0.362 ± 0.254	0.284 ± 0.252	0.007
	3	0.813 ± 0.261	0.583 ± 0.253	0.362 ± 0.254	0.313 ± 0.255	0.02
Animal protein, g/d	1	0.624 ± 0.176	0.655 ± 0.175	0.410 ± 0.176	0.402 ± 0.184	0.19
	2	0.651 ± 0.258	0.644 ± 0.251	0.389 ± 0.253	0.360 ± 0.254	0.11
	3	0.702 ± 0.261	0.642 ± 0.251	0.362 ± 0.253	0.313 ± 0.258	0.05
Plant protein, g/d	1	0.784 ± 0.170	0.473 ± 0.178	0.524 ± 0.180	0.227 ± 0.183	0.01
	2	0.822 ± 0.252	0.479 ± 0.257	0.513 ± 0.253	0.196 ± 0.253	0.006
	3	0.891 ± 0.254	0.508 ± 0.257	0.519 ± 0.252	0.141 ± 0.254	0.001

Protein intake inversely associated with inflammation & oxidative stress score

Favorable association observed with Plant protein
Trended towards significance with Animal protein

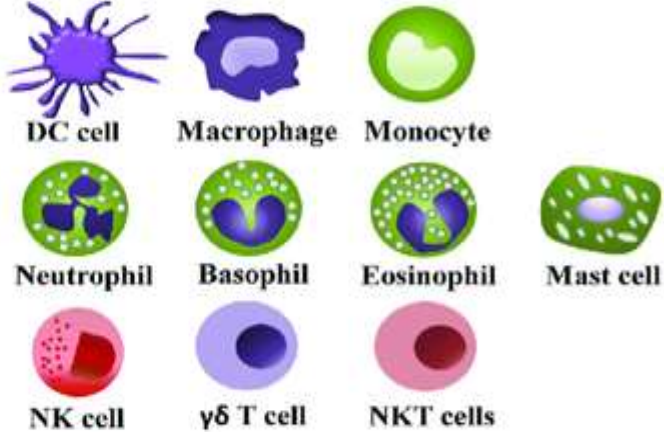
What is the role of Proteins in Immunity



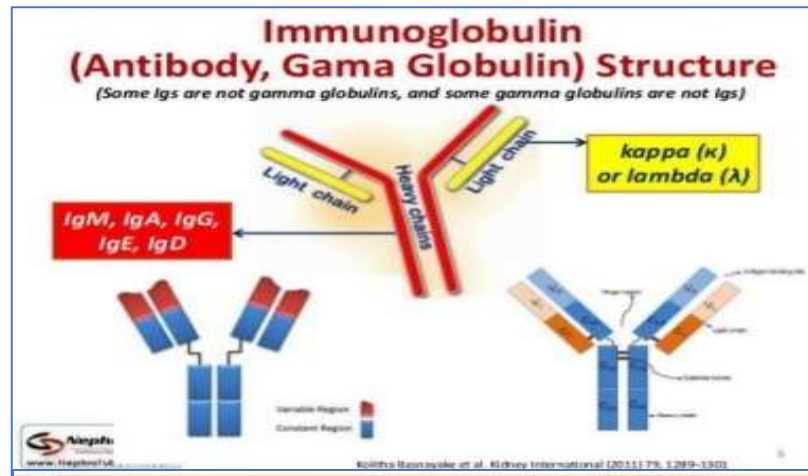
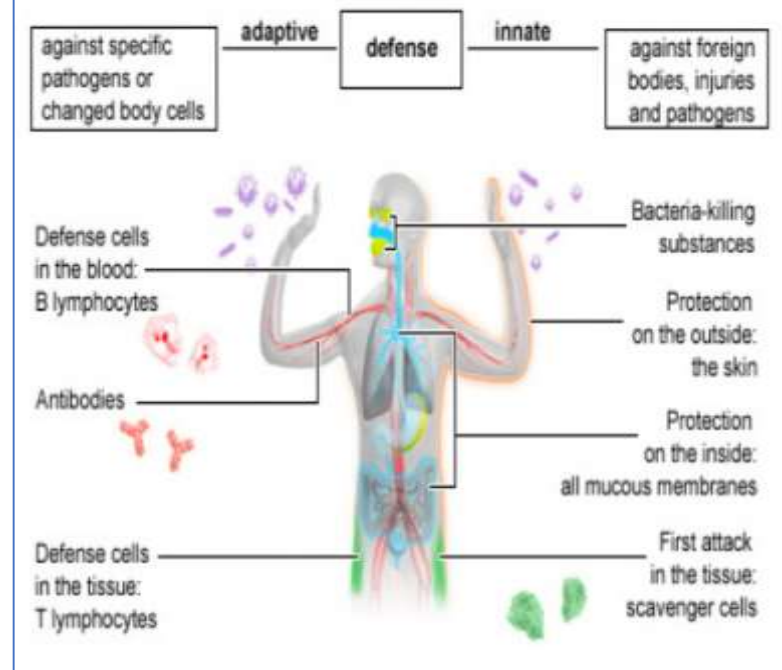
i) The first line of defense

Skin; mucous membranes; cilia; stomach acid; urine flow

ii) The second line of defense



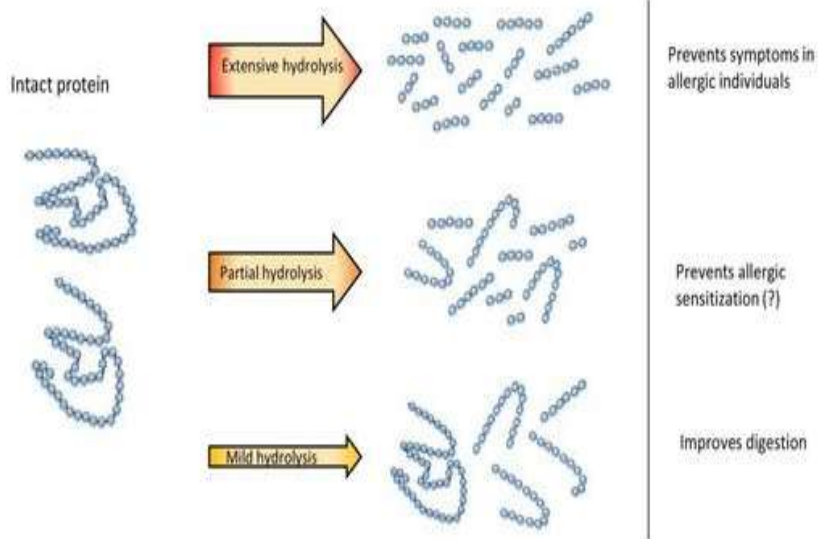
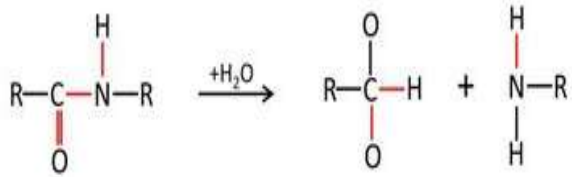
iii) The third line of defense



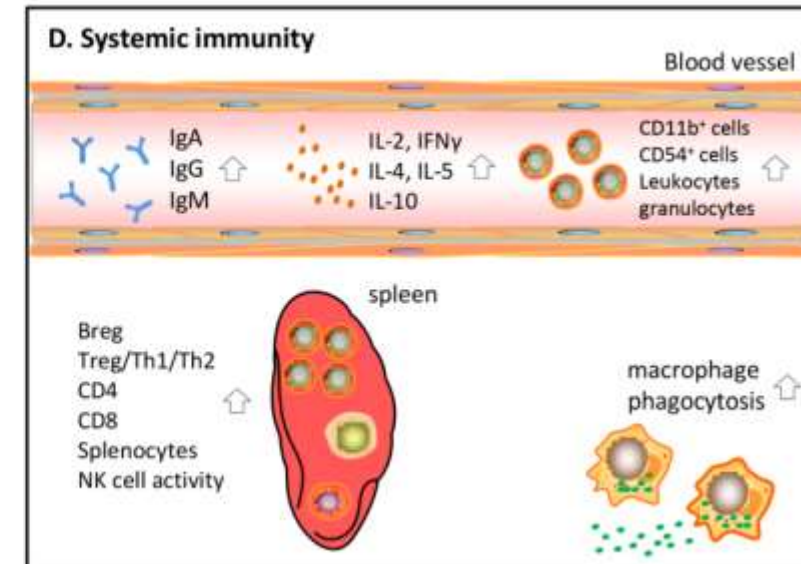
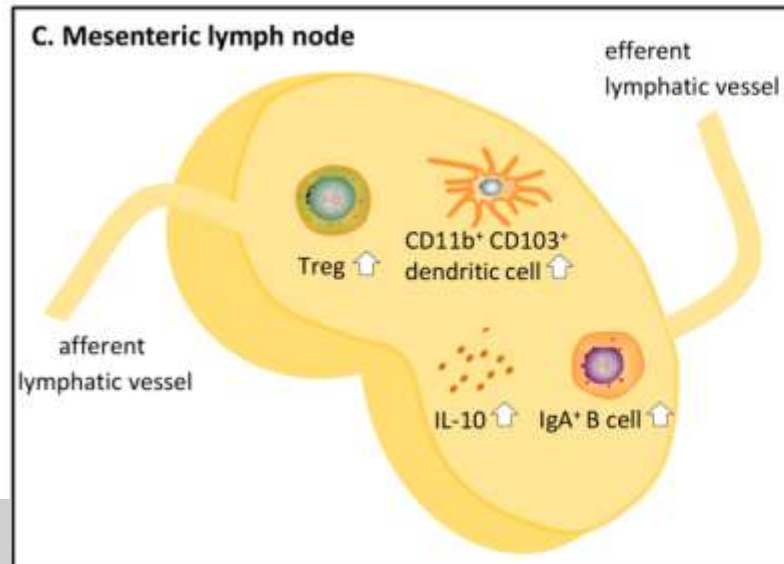
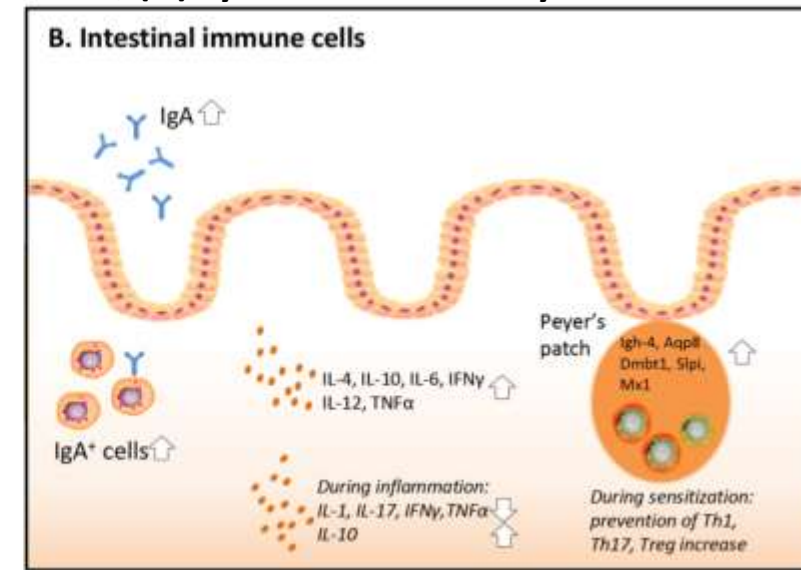
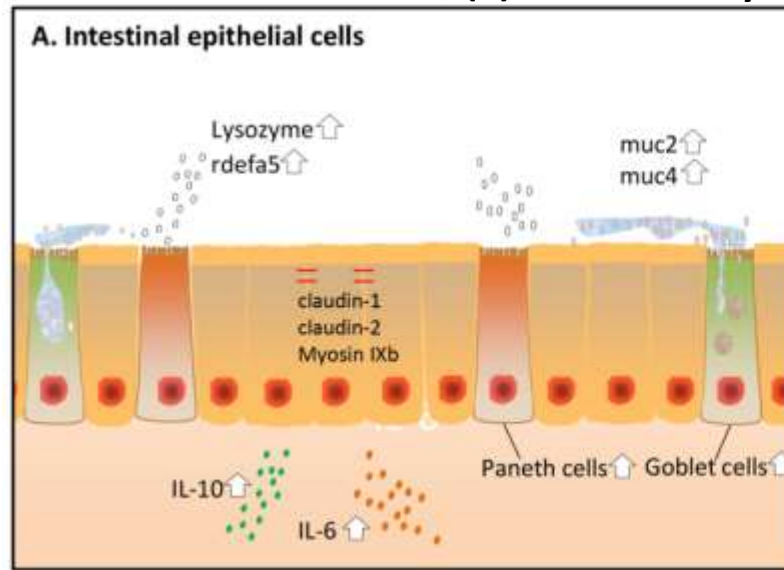
- Neutralize germs
- Activate other immune system cells
- Activate proteins that help in the immune system response.

Protein Hydrolysates as Immunomodulator

- ❖ Process of protein hydrolysis and Different hydrolysates for different purposes
- ❖ Protein hydrolysate consumption allows amino acids to be absorbed by the body more rapidly than intact proteins, thus maximizing nutrient delivery



Immune effects induced by protein hydrolysates on the (A) intestinal epithelial cells; (B) intestinal immune cells; (C) mesenteric lymph nodes; (D) systemic immune system.



Convalescence and Recovery-Why it is important?

BRITISH MEDICAL JOURNAL

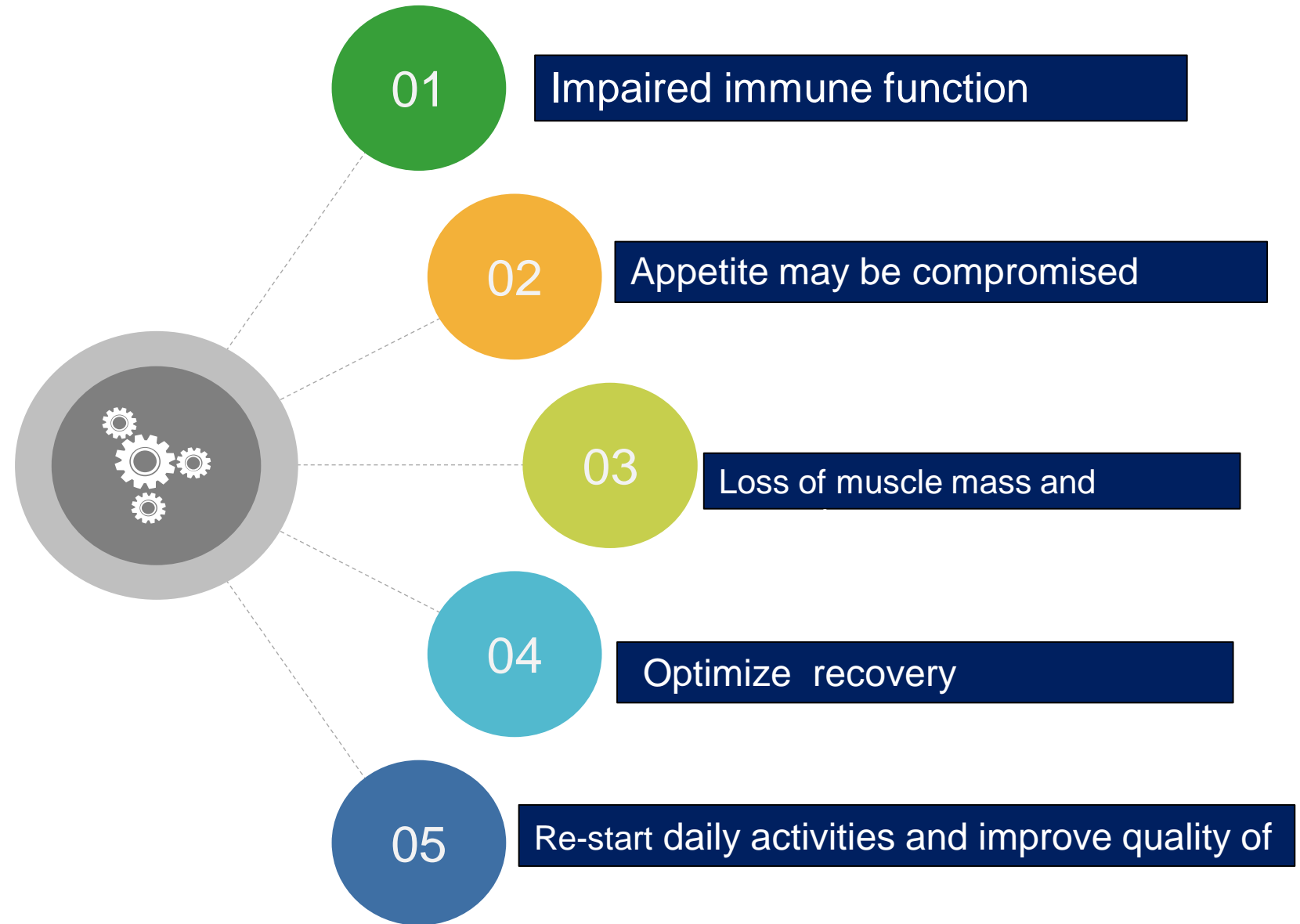
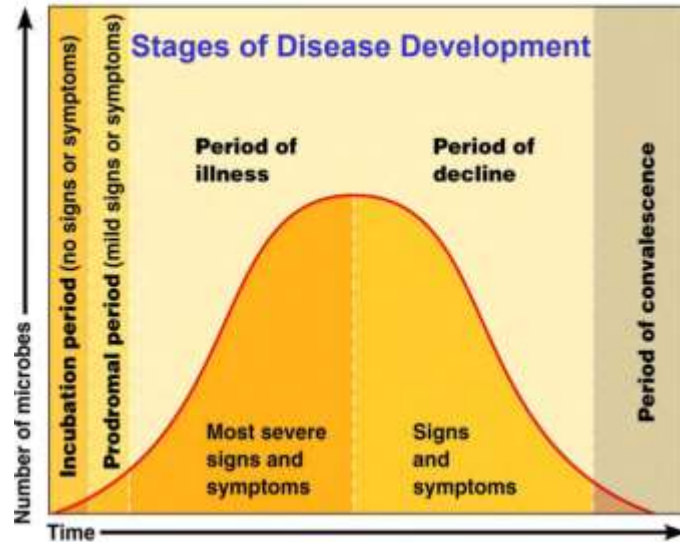
LONDON SATURDAY OCTOBER 23 1948

THE SIGNIFICANCE OF PROTEINS IN NUTRITION THEIR PARTICULAR IMPORTANCE DURING CONVALESCENCE*

BY
D. P. CUTHBERTSON, M.D., D.Sc.
Director, Roentgen Research Institute, Aberdeen

The protein component in nutrition is one of the most important of all fields for study, for it deals with the essential fabric of growth, repair, and reproduction and with other dynamic expressions of vital activity involving continuous chemical change such as the maintenance of the osmotic relationships in the tissue fluids, immunity mechanisms, enzyme systems, and hormones.

in small quantity as such. While the body has the facility of synthesizing certain of these amino-acids or specific groups, others either cannot be synthesized at all or only at a very slow rate. Diets must therefore contain proteins which, when acting in supplementary fashion, will provide all the essential amino-acids required and sufficient nitrogen to provide for general purposes. It is very necessary



Why Protein is required in Convalescence

•Increased demand due the negative nitrogen balance

Excessive release of inflammatory cytokines may accelerate protein catabolism

Stress produces nitrogen losses, driven by the catabolic actions of cortisol and epinephrine.

Anorexia & reduced assimilation of protein by the body

Skeletal muscle breakdown leads to loss of protein

Irritability, brain fog and unstable mood are linked with low protein

Some of the medicines consumed during the illness could also have detrimental effects and delay recovery

Summary

Protein deficiency is under reported and under diagnosed and needs immediate attention

Poor awareness on the protein deficiency and vast majority of Indians are protein deficient

Protein plays a very critical role for normal well being as well as in Immunity and convalescence

Its not just the quantity but the quality of proteins

Some of nutrition gets lost either during processing or cooking methods, hence supplementation

Paradigm change in nutritional management with plant-based proteins over animal protein

Advanced science is moving towards balanced nutrition, from treatment to holistic wellbeing with Nutrition and lifestyle style

