

PROTEIN QUALITY IN MEDICAL NUTRITION



Protein is a crucial macronutrient that is essential for many biological processes including maintenance of muscle mass & function, production of liver proteins and gut digestive enzymes, wound healing, and immune function.^{1,4}

Protein is made of building blocks called amino acids.

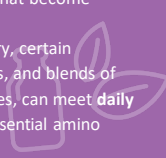
Dietary amino acids can be categorized as **essential** (cannot be synthesized in the body) and **non-essential** (can be synthesized in the body).^{5,6}

In certain diseases the ability to synthesize non-essential amino acids is compromised, and these amino acids become **conditionally essential**.^{4,7-12}

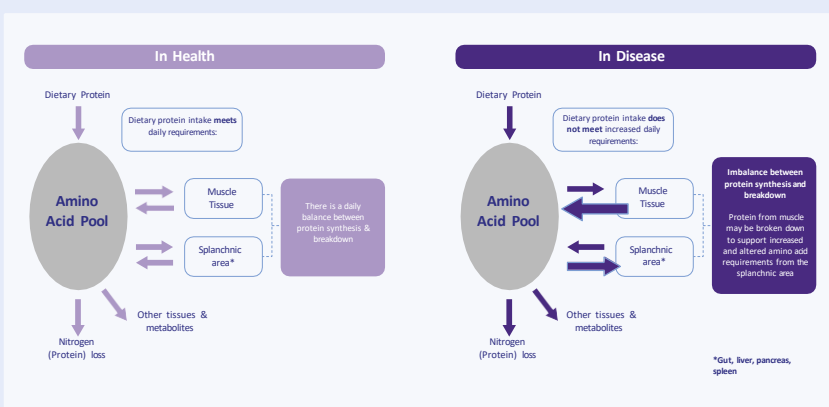


Dairy and plant proteins both contain essential and non-essential amino acids.

Generally, dairy proteins are richer in **essential amino acids** and plant proteins are richer in some **non-essential amino acids**, including those that become conditionally essential in disease. However, dairy, certain individual plant sources, and blends of different protein sources, can meet **daily requirements** for all essential amino acids.

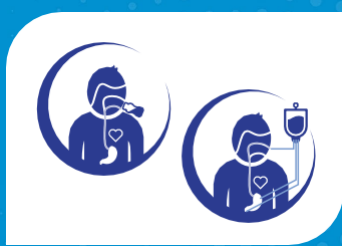


There are differences in amino acid metabolism in health compared to disease, **resulting in different amino acid requirements**.¹³⁻¹⁴



In conditions where protein intake is inadequate, ensuring high protein quality becomes even more important.

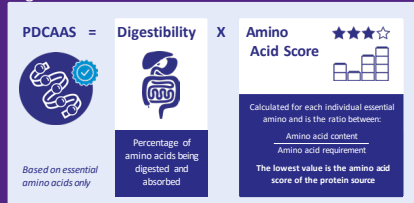
Ensuring medical nutrition products provide the right protein quantity & quality is important to improve outcomes such as **wound healing, strength, and physical performance**.^{2,15}



WHAT IS PROTEIN QUALITY?

Protein quality is the capacity of a protein source to meet amino acid requirements to **satisfy metabolic needs**.^{5,6}

Protein Digestibility Corrected Amino Acid Score (PDCAAS) is a **method to assess protein quality** that is recognized by the Food and Agriculture Organization and World Health Organization.^{5,6}



PDCAAS of Dairy and Plant Proteins

Protein Isolate	PDCAAS ¹
Casein	1,4
Whey	1,0
Soy	1,1
Pea	0,9

¹Calculated using average digestibility of 98,5%^{16,17} and FAO 2013 amino acid requirement references for adults.¹⁸

²PDCAAS scores are normally truncated to 1, however, untruncated values have been reported to reflect true differences between protein sources.

A protein source with a PDCAAS of 1 is considered high quality.¹⁹

Tube and ONS products with dairy, plant, or blends of different protein sources can achieve a PDCAAS of 1, indicating high protein quality.



Conclusion

Protein from both dairy & plant sources can meet standards for protein quality and be considered high quality, and therefore meet the needs of patients requiring medical nutrition.

Ensuring adequate intake of high quality protein will have positive impacts on outcomes such as **infections, wound healing, strength, and physical performance**.^{2,15}

Call to Action

Be confident that your patient's needs can be met with medical nutrition products containing different sources of protein, including plant protein.

Work together with your patient to pick the tube feed or ONS that meets their lifestyle preferences and medical needs.

References

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