The background is a solid teal color. Scattered across the top and bottom are several white line-art diagrams of molecular structures. Each diagram consists of a central circle of varying size connected by thin lines to two or three smaller circles, representing atoms or subunits in a network.

**THINK**  
DIFFERENTLY  
**ABOUT**  
PROTEIN

# UNDERSTANDING PROTEIN AMINO ACIDS AND BRANCHED-CHAIN AMINO ACIDS

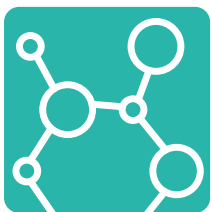
Prof. Philip Atherton

In September 2022, Professor Philip Atherton hosted an educational webinar for clinical nutrition professionals, where he discussed the importance of protein quality. Particular focus was given to the role of essential amino acids and branched-chain amino acids and the important role they play when feeding the patient. This brochure sets out to highlight the key learnings, which in turn challenge us to think differently about protein.



## Muscle

- Muscle is a fundamental store of protein, containing half of all body protein.
- In chronic diseases, compromised muscle can lead to poorer outcomes.
- Nutrition, particularly protein, is essential to maintain muscle mass and other organ tissues.



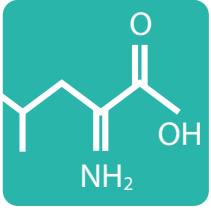
## Muscle Protein Synthesis (MPS)

- MPS is the largest part of the anabolic response to nutrition, and increases three-fold in response to feeding.
- 20g protein has been shown to be sufficient to provide a maximal stimulus for MPS in a healthy population - this is likely to increase with age and disease. This can be delivered as one, or multiple boluses.
- Research shows that older adults require approximately a third more protein to achieve the same level of MPS.



## The Window of Opportunity

- There is a short-term response to the delivery of dietary protein. The window of opportunity for stimulating MPS is thought to be approximately 2-3 hours. After this point the muscle becomes unresponsive, and additional dietary protein will not further increase MPS. This is termed 'muscle full'.



## Essential Amino Acids & Leucine

- Research has found that leucine alone stimulates MPS in the absence of any other amino acids, and can overcome substantive differences in protein dosing.
- The exact dose of leucine needed to stimulate MPS is unclear and may be population specific, however 1.2g has been shown to induce very robust stimulation.
- Whilst leucine provides an important signal for driving the anabolic response, ultimately all other essential amino acids at the right levels are also required to support MPS.



## Protein Quality

- Protein quality is a measure of essential amino acid composition, compared to a reference pattern, and absolute digestibility of a protein.
- There are several ways in which protein quality can be measured, one of which is PDCAAS.
- It can be difficult to find protein quality values for everyday foods, however as the importance of protein is being increasingly recognised, more clinical nutrition companies are reporting on the PDCAAS scores of their products, and it is important to consider these.

[Click here to watch the webinar](#)



# HOW DOES TF ENFIT COMPARE?

## Direct ENFit connection

Offers a simple, effective solution which saves on nursing time

## 20g protein

- Provides maximal stimulus for MPS
- One bolus ensures protein intake is within the "window of opportunity" to induce MPS
- Optimises protein provision when opportunities to feed may be limited

## 1.1g of leucine

Similar levels are shown to stimulate robust MPS

## All essential amino acids

Present at the right levels - important in addition to leucine to support MPS

## PDCAAS score of 100%

Demonstrates a high-quality protein which has 100% digestibility and contains optimal quantities of amino acids

## High acceptability & tolerance

Low osmolality, hydrolysed & very low electrolytes



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request samples or a meeting

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