



Stronger for Longer: Combating Age-Related Muscle Loss

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A More Complete Musculoskeletal Approach


Imagine the musculoskeletal category as a three-legged stool:

- Joint health
- Bone health
- Muscle health

For joint health and bone health, they are both industry leading health categories, but the inevitable loss in muscle health is an underserved and poorly supported leg of the stool.

Often we look to protein for this support, but protein simply delivers the building blocks not the signal to build muscle protein and reduce protein breakdown that is the root of the muscle health issue.

Consumers looking for complete musculoskeletal health need more than just protein as the solution for their muscle health. They need to get the muscle machinery working in the correct balance. This is the value of myHMB...




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HMB uniquely both stimulates protein synthesis & reduces breakdown - dual mechanisms of action

Muscle is a dynamic tissue, continually breaking down and rebuilding itself at a rate of 1-2% per day.

Evidence recommends that 3g of HMB is needed to maximize the anticatabolic benefits

This requires supplementary HMB consumption as 3g of HMB is the equivalent amount that can be converted from 60g of leucine or 600g of protein



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HMB is important across all stages of life



There is an inevitable age related decline in body condition that needs to be addressed to improve quality of life

This is determined by developing and subsequently maintaining a functional reserve.

Crucially, we all will need to proactively manage periods of inactivity and catabolic crisis caused by illness or injury.

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Muscle function is critical to healthy longevity



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HMB improves physical function without exercise

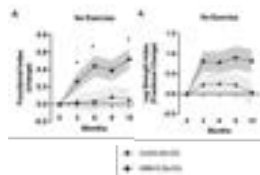


HMB+D improves physical function in non-exercising older adults

117 men and women ≥ 60y (avg. 69 y) with insufficient Vitamin D (15-30 ng/mL 25OHD)

12-month study - testing at baseline, 3, 6, 9, and 12 months

HMB (3 g/d) + Vitamin D3 or placebo ± moderate resistance exercise training



Results:

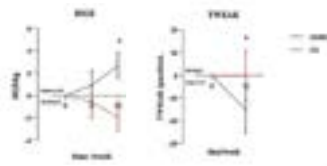
- ✓ HMB+D supplementation increased 25OHD levels into sufficient range
- ✓ HMB+D increased functional and tended to increase strength in non-exercisers

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HMB improves muscle health in older adults with sarcopenia

34 adults diagnosed with sarcopenia (60+ y)
 12 week supplementation with resistance training
 3 g/d HMB or a placebo

Results:
 ✓ HMB significantly enhance the effect of resistance exercise training on muscle strength, physical performance, muscle quality, and reduced inflammatory factors.

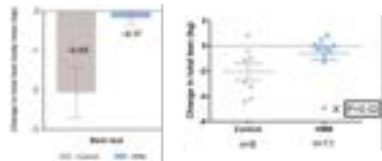


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HMB preserves muscle during inactivity

Healthy older adults (60-76 y)
 Complete bed rest for 10 days + 8 weeks of rehabilitation
 3 g/d HMB or a placebo provided starting 5 days before bed rest

Results:
 ✓ HMB preserved muscle mass during 10 d of bedrest

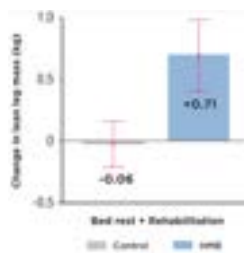


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HMB helps speed recovery

Healthy older adults (60-76 y)
 Complete bed rest for 10 days + 8 weeks of rehabilitation
 3 g/d HMB or a placebo provided starting 5 days before bed rest

Results:
 ✓ HMB tended to improve leg lean mass gains during rehabilitation from bed rest ($p = 0.06$)



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Versatile ingredient that allows flexible formulation and delivery options 

Supplement Delivery Forms



Food Formulations



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The myHMB® Quality Advantage 

Rigorously researched and tested

- myHMB® ingredient subjected to the most clinical research with 100+ human studies
- Rigorously tested, comprehensive dossier, to support brand customer claims, safety and toxicity and regulatory filings
- Panel tested sensory testing and approval - available for each lot
- Strict heavy metal and solvent residue specifications
- State-of-the-art process, facilities, USP IVP verified, CGMP
- Recently Informed Ingredient certified

The leading HMB ingredient for safety and regulatory compliance

- Not listed World Anti-Doping Code 2016 prohibited list (WADA)
- US Self Affirmed GRAS (Generally Recognized As Safe)
- China Novel Food Approved, Health Canada Master File; EU, Japan, Malaysia, Indonesia, supplement approved; Australia Aust L approved, pending regulatory approval in several additional key markets worldwideSelf-Affirmed



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Learn more at www.tsigroupltd.com and www.myHMB.com

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