



The Correlation of  
myHMB<sup>®</sup>, Handgrip  
Strength & Healthy Aging

POSITION PAPER





# Exploring the Relationships Between HMB, Hand Grip Strength, and Healthy Aging

## Prioritizing Healthspan: The Key Role of Muscle Health in Aging Well

As the global population ages, the concepts of healthy aging and optimizing healthspan have become increasingly important. While lifespan measures the total number of years lived, healthspan focuses on the quality of those years. Healthspan is the duration of life spent in good health, free from serious disease or disability. Maintaining muscle health is important for everyone, and becomes especially critical for older adults, as muscle mass, strength, and function naturally decline over time. This decline can lead to functional disability, loss of independence, and reduced quality of life.<sup>1</sup>

## Hand Grip Strength: A Simple, Powerful Indicator of Muscle Health and Longevity

One common way of assessing muscle strength is with a hand grip dynamometer. Hand grip dynamometers are affordable and portable, and they can measure strength quickly and easily without specialized training. Several styles of hand grip dynamometer are available, with the most common being hydraulic and spring-type. The dynamometer measures the maximum force exerted by squeezing the hand and yields a numerical result (in pounds or kilograms) that can be used to track strength over time.

Hand grip strength is correlated with the strength of multiple muscle groups and serves as a reliable indicator of overall muscle health and function.<sup>2</sup> Research has consistently linked hand grip strength with various health outcomes, including both lifespan and healthspan. Lower hand grip strength is associated with shorter lifespan and a higher risk of disability.<sup>3</sup> For instance, among healthy middle-aged men, those with the lowest grip strength were more than twice as likely to face mobility challenges and difficulty with independent self-care 25 years later.<sup>4</sup>

While the relationships between hand grip strength, lifespan, and healthspan have been established for decades, new research continues to inform the importance and deeper understanding of hand grip strength as a marker of overall health. For example, a recent study evaluated the relationships between low hand grip strength and remaining lifespan in a sample of 14,178 adults aged greater than or equal to 50 years.<sup>5</sup> The researchers controlled for other several other factors known to affect overall health, including obesity, diagnosed disease, smoking status, and physical activity level, among others. Adults classified as having low hand grip strength based on absolute and/or body size-adjusted cutpoints had a 33–69% higher risk of death than individuals with normal handgrip strength.



## HMB: A Promising Solution for Maintaining Muscle Strength and Promoting Healthy Aging

Overall, the relationships between hand grip strength, lifespan, and healthspan highlight the need for interventions aimed at preserving muscle function in aging adults. One promising intervention option is  $\beta$ -Hydroxy  $\beta$ -Methylbutyrate (HMB), which is known for its muscle-preservation benefits. HMB supplementation works through a dual mechanism: enhancing muscle protein synthesis and reducing muscle protein breakdown.<sup>6</sup> Multiple studies have demonstrated the effectiveness of HMB in improving hand grip strength:

**Flakoll et al.<sup>7</sup>:** In a 12-week study, older women who supplemented with HMB alongside 2 amino acids experienced increases in hand grip strength compared with women in a placebo group, who experienced decreases in hand grip strength.

**Yang et al.<sup>8</sup>:** This study focused on older adults with sarcopenia participating in a 12-week resistance training program. Participants taking HMB showed greater improvements in hand grip strength compared with those taking a placebo, despite both groups engaging in resistance training.

**Lattanzi et al.<sup>9</sup>:** In men undergoing liver transplantation (a population at risk for developing sarcopenia), HMB supplementation over 12 weeks led to significant increases in hand grip strength, while the control group showed no change. Notably, the strength gains observed in the HMB group persisted for a year.

**Rathmacher et al.<sup>10</sup>:** In a year-long study that compared non-exercising older adults taking HMB (with vitamin D) or placebo, the group taking HMB experienced greater improvements in a composite measure of physical function that included hand grip strength as well as 2 other functional tests. The functional improvements observed with HMB were observable at 3 months and maintained at 12 months. These results highlight the longer-term potential of HMB to support the development and maintenance of functional reserve, even in older adults who are habitually inactive.

**The collective findings from these studies show a correlation between HMB supplementation and improved hand grip strength. Given that hand grip strength serves as a proxy for muscle function - and considering the vital role muscle strength plays in longevity and healthspan - HMB supplementation presents a promising strategy for enhancing healthy aging. By supporting better muscle health, HMB may contribute to a healthier aging population characterized by enhanced functional capacity, quality of life, and potentially even lifespan.**



## References

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