

Omega-3 and Healthy Aging: What We Really Know About Memory, Dementia, and Muscle Strength

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Key highlights:

- Omega-3 supplements do not prevent memory loss or improve dementia symptoms.
- Supplements may offer modest gains in strength and mobility, especially with exercise. Effects on building or maintaining muscle size are minimal on their own.
- Best Results on muscle health : Higher doses Omega-3 (≥ 2 g/day) for ≥ 6 months, combined with resistance training and adequate protein, are most effective.

What Are Omega-3 Fatty Acids?

Omega-3 fatty acids are essential fatty acids. They are found in oily fish (salmon, sardines, mackerel), flaxseeds, chia seeds, walnuts, and algae. The two main forms in fish oil are: EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid).

Omega-3s help maintain heart, brain, and muscle health as we age. Because of this, supplements are often promoted to protect memory, prevent dementia, and maintain muscle strength. But what does the scientific evidence actually show about the effects of Omega -3 on memory loss and muscle function?

Omega-3 and Memory Loss

High-quality evidence comes from a Cochrane review of older adults without cognitive problems. Participants took fish oil or DHA supplements for several months to a few years (Sydenham et al., 2012). The findings were that Omega-3 supplements did not improve memory or thinking tests compared with a placebo. Supplements did not reduce the risk of developing dementia.

Another Cochrane review examined individuals with Alzheimer's disease or other forms of dementia (Burckhardt et al., 2016). The results were similar: Omega-3 supplements did not improve cognitive performance, including memory and thinking tests. They had no meaningful impact on daily functioning or quality of life. Even in mild cases, improvements were negligible in everyday life.

More recent but weaker evidence comes from meta-analyses. Wu et al., 2021 have found slight improvements in memory for certain groups, such as people with low omega-3 intake or who received higher DHA doses. However, these effects are not enough to improve overall cognitive function.

Omega-3 and Muscle Health

While evidence for brain benefits is weak, omega-3s show more promise for maintaining muscles, which is critical for healthy aging.

Sarcopenia, the gradual loss of muscle mass, strength, and function, affects many older adults. It increases the risk of falls, fractures, and loss of independence. Resistance training and sufficient protein are key to prevention.

Laboratory studies suggest omega-3s can increase muscle protein synthesis, helping the body build and maintain muscle. They may also reduce chronic inflammation, which contributes to age-related muscle loss (Smith et al., 2011).

Several recent systematic reviews and meta-analyses have summarized the evidence from clinical trials on omega-3 and muscle health.

- **On Muscle Mass:** Omega-3 supplements alone have little effect on increasing muscle mass. Some studies showed small gains, but results are inconsistent (Cornish et al., 2023).
- **On Muscle Strength:** Evidence is more encouraging. Studies report modest improvements, especially in leg strength such as knee extension or leg press exercises. Handgrip strength improvements were smaller (Lewis et al., 2020).
- **On Physical Performance:** Walking speed, chair-rise tests, and balance measures showed small but meaningful improvements. Benefits were strongest when omega-3s were combined with resistance exercise.

Higher doses (about 2 grams per day) of combined EPA and DHA and longer interventions (six months or more) were more likely to produce measurable benefits. Short-term or low-dose studies often failed to show meaningful results.

Omega-3 supplements are generally safe. Mild side effects may include digestive discomfort or a fishy aftertaste.

Conclusion

Omega-3 fatty acids remain an important part of a healthy diet, but their role in aging is sometimes misunderstood. The strongest and most reliable evidence tells us that omega-3 supplements do not prevent memory decline in healthy adults and do not improve symptoms in people with dementia.

However, when it comes to maintaining muscle strength and physical function, especially in combination with regular exercise, omega-3s show small but encouraging benefits that may support healthier, more active aging.

For further reading:

1. Sydenham E, Dangour AD, Lim WS. *Omega-3 fatty acid for the prevention of cognitive decline and dementia*. Cochrane Database of Systematic Reviews. 2012;6:CD005379.
2. Burckhardt M, Herke M, Wustmann T, Watzke S, Langer G, Fink A. *Omega-3 fatty acids for the treatment of dementia*. Cochrane Database of Systematic Reviews. 2016;4:CD009002.
3. Wu S, et al. *Effects of DHA supplementation on cognitive function in older adults: meta-analysis*. Clinical Nutrition. 2021.
4. Cornish SM, et al. *The effect of omega-3 supplementation on muscle mass, strength and physical performance in older adults: systematic review and meta-analysis*. Clinical Nutrition. 2023.
5. Lewis NA, et al. *Effect of omega-3 fatty acid supplementation on skeletal muscle function in older adults: meta-analysis*. American Journal of Clinical Nutrition. 2020.
6. Smith GI, et al. *Omega-3 supplementation increases muscle protein synthesis and strength in older adults*. American Journal of Clinical Nutrition. 2011.

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