Journal of Cachexia, Sarcopenia and Muscle

ORIGINAL ARTICLE OPEN ACCESS

Statin Use Is Associated With a Decline in Muscle Function and Mass Over Time, Irrespective of Statin Pharmacogenomic Score

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Received: 30 June 2025 | **Revised:** 1 October 2025 | **Accepted:** 13 October 2025

Keywords: aging | hydroxymethylglutaryl-CoA reductase inhibitors | muscle mass | muscle strength | polygenic risk score | sarcopenia

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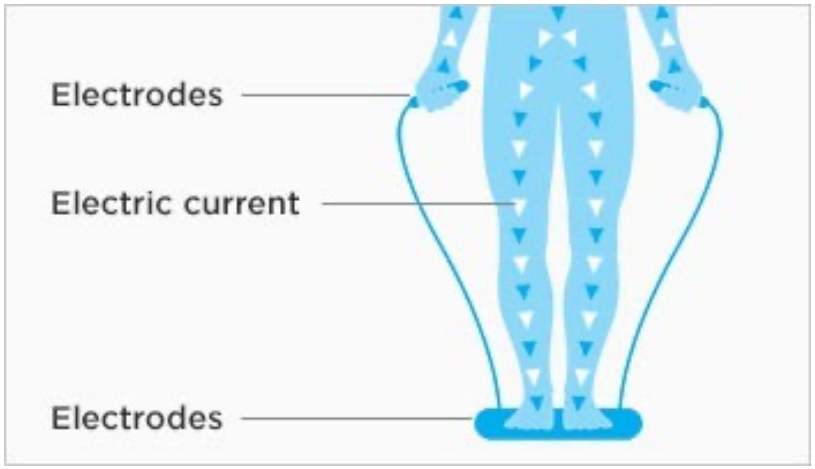
- included 297 977 participants from the UK Biobank
- Grip strength was measured using a Jamar J00105 hydraulic hand dynamometer, and the appendicular lean mass (ALM) was estimated using bioelectrical impedance analysis.
- linear regression to evaluate the cross- sectional and longitudinal associations between statin use and (changes in) grip strength or ALM, adjusting for demographic, lifestyle and health factors.
- Participants averaged 56.4 (± 8) years, and 46% were male.

- Appendicular Lean Mass (ALM) measures the total amount of fat-free, bone-free tissue (primarily muscle) in the arms and legs. It accounts for over 75% of the body's skeletal muscle and is a crucial indicator of physical strength, mobility, and metabolic health.
- ALM is used to identify sarcopenia (low muscle mass), with typical cut-points for low ALM/height being below 7.0 kg/m for men and 5.5 kg/m for women.



J Gerontol A Biol Sci Med Sci. 2021 Nov 3;77(7):1398–1404.
doi: 10.1093/gerona/glab332

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Conclusions

- *Continuous statin use is associated with a decline in muscle function and mass over time (25% decline in grip strength and 73% decline in ALM compared to never- users), irrespective of genetic susceptibility to statin response.*

- *The PGS did not significantly influence the rate of decline over time.*

Key Aspects of Statin Pharmacogenetics

* Primary Gene (SLCO1B1): Variations in this gene affect how the liver takes up statins, particularly simvastatin, increasing the risk of muscle pain.
* Other Genes: ABCG2 and CYP2C9 are also analyzed to assess risks associated with specific statins like rosuvastatin.
* Clinical Utility: Results guide dosage adjustments or the selection of alternative statins to prevent SAMS, which can lead to treatment discontinuation.
* Targeted Therapy: These tests are particularly useful for patients with a history of muscle pain while on, or being considered for, high-intensity statin therapy.

Some statins are less likely to cause myopathy (muscle pain/weakness) due to differences in how they are processed by the body.
Hydrophilic statins like pravastatin and rosuvastatin generally cause fewer muscle issues than lipophilic ones (e.g., simvastatin, atorvastatin). Simvastatin, especially at high doses, has the highest risk.

Key Considerations: CO-Q10 and myopathy

- Bioavailability: Ubiquinol is better absorbed than ubiquinone (regular CoQ10), making it more effective at increasing CoQ10 levels in the blood.

- Effectiveness for Myopathy: Despite higher absorption rates, meta-analyses of randomized controlled trials have not consistently shown that CoQ10 supplementation (in either form) significantly reduces statin-associated muscle symptoms.

- Recommendation: While some evidence suggests a potential benefit for some patients, the data is not conclusive. It is generally considered safe to try under medical supervision, says the JACC Journals.

Mayo Clin Proc. 2015 Jan;90(1):24-34. doi: 10.1016/j.mayocp.2014.08.021.