Exercise improves muscle performance in statin users

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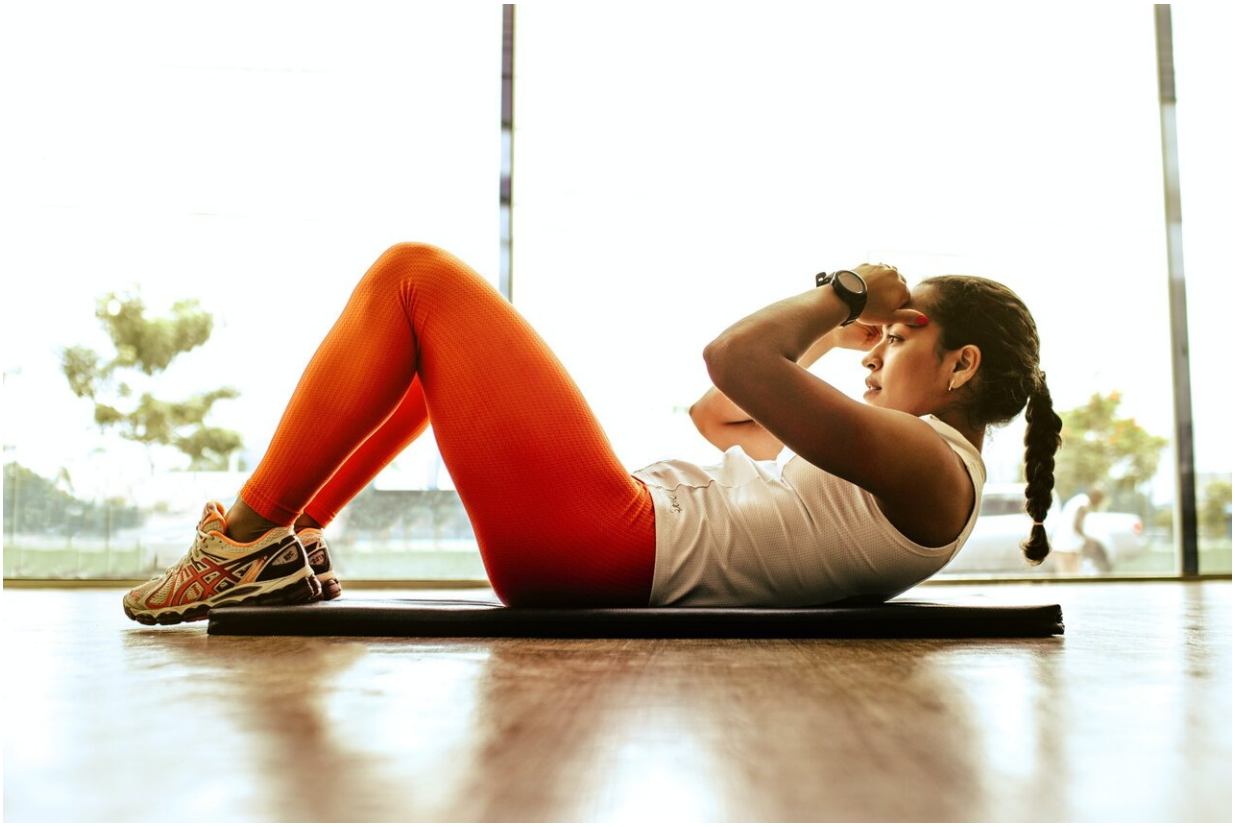

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A moderate intensity endurance and resistance exercise training program improves muscle performance in statin users without exacerbating muscle complaints. This is one of the conclusions of a training study that

is published in the *Journal of the American College of Cardiology.*

Cholesterol-lowering drugs (statins) are among the most widely prescribed medications in the world for prevention of cardiovascular diseases and are suggested to influence the exercise tolerance of its users.

Effects on the muscles

Statins are well-tolerated, but may produce muscle symptoms (e.g. cramps, pain, fatigue, stiffness) in some patients, in part due to disturbed muscle mitochondrial energy metabolism. Physical activity is also associated with reduced cardiovascular disease risk, and this reduction is enhanced by statin treatment. It was, however, unclear if the mitochondrial dysfunction associated with statin therapy attenuates training adaptations and exacerbates muscle complaints with exercise training.

Patients with and without statin-associated muscle symptoms underwent a supervised training program for twelve weeks. The program consisted of endurance cycling training twice a week and resistance training once a week. Researchers of Wageningen University & Research, Radboudumc and Maastricht University measured muscle performance, muscle mitochondrial energy metabolism, muscle fiber capillarization and muscle symptoms before and after training.

Health benefits

Both symptomatic and asymptomatic statin users can improve skeletal muscle performance, muscle fiber capillarization and mitochondrial content by participating in a combined exercise training program without exacerbating symptoms. "This has important clinical implications," says researcher Eline Allard of the Radboudumc, "since combining statin therapy with physical activity is known to produce substantial health benefits."

The results indicate that statin use is unlikely to alter the exercise training response and statin use should not be a factor limiting clinicians from prescribing exercise to statin users. Exercise training may even increase quality of life in symptomatic statin users.

Type 1 muscle fibers

The study outcome also opens new avenues for further research. The distribution of muscle fiber types may be an important factor for statin-associated muscle symptoms. "Type I muscle fibers, mainly used for endurance exercises, were less prevalent in symptomatic statin users before the training intervention," says researcher Silvie Timmers of Wageningen University & Research. Further research is needed to examine whether increasing the proportion of type I muscle fibers by exercise training is an effective strategy to improve muscle performance in symptomatic statin users.

More information: *Neeltje A.E. Allard et al, Moderate Intensity Exercise Training Improves Skeletal Muscle Performance in Symptomatic and Asymptomatic Statin Users, Journal of the American College of Cardiology (2021).* DOI: 10.1016/j.jacc.2021.08.075

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