

# Lighter weights just as effective as heavier weights to gain muscle, build strength

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Kevin Murphy, a kinesiology student and participant in the study, works out. Credit: McMaster University

New research from McMaster University is challenging traditional workout wisdom, suggesting that lifting lighter weights many times is as efficient as lifting heavy weights for fewer repetitions.

It is the latest in a series of studies that started in 2010, contradicting the decades-old message that the best way to build [muscle](#) is to lift heavy weights.

"Fatigue is the great equalizer here," says Stuart Phillips, senior author on the study and professor in the Department of Kinesiology. "Lift to the point of exhaustion and it doesn't matter whether the weights are heavy or light."

Researchers recruited two groups of men for the study—all of them experienced weight lifters—who followed a 12-week, whole-body protocol. One group lifted lighter weights (up to 50 per cent of maximum strength) for sets ranging from 20 to 25 repetitions. The other group lifted heavier [weights](#) (up to 90 per cent of maximum strength) for eight to 12 repetitions. Both groups lifted to the point of failure.

Researchers analyzed muscle and blood samples and found gains in [muscle mass](#) and muscle fibre size, a key measure of strength, were virtually identical.

"At the point of fatigue, both groups would have been trying to maximally activate their [muscle fibres](#) to generate force," says Phillips, who conducted the work with graduate students and co-authors Rob Morton and Sara Oikawa.

While researchers stress that elite athletes are unlikely to adopt this training regime, it is an effective way to get stronger, put on muscle and generally improve health.

"For the 'mere mortal' who wants to get stronger, we've shown that you can take a break from lifting [heavy weights](#) and not compromise any gains," says Phillips. "It's also a new choice which could appeal to the masses and get people to take up something they should be doing for their health."

Another key finding was that none of the strength or [muscle growth](#) were related to testosterone or [growth hormone](#), which many believe are responsible for such gains.

"It's a complete falsehood that the short-lived rise in testosterone or growth hormone is a driver of muscle growth," says Morton. "It's just time to end that kind of thinking."

Researchers suggest, however, that more work remains to be done in this area, including what underlying mechanisms are at work and in what populations does this sort of program work.

The findings are published online in the *Journal of Applied Physiology*.

**More information:** Robert W. Morton et al, Neither load nor systemic hormones determine resistance training-mediated hypertrophy or strength gains in resistance-trained young men, *Journal of Applied Physiology* (2016). DOI: [10.1152/jappphysiol.00154.2016](https://doi.org/10.1152/jappphysiol.00154.2016)

Provided by McMaster University

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