

Can exercise be replaced with a pill?

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Various pills. Credit: Wikipedia

Everyone knows that exercise improves health, and ongoing research continues to uncover increasingly detailed information on its benefits for metabolism, circulation, and improved functioning of organs such as the heart, brain, and liver. With this knowledge in hand, scientists may be better equipped to develop "exercise pills" that could mimic at least some of the beneficial effects of physical exercise on the body. But a review of current development efforts, publishing October 2 in *Trends in Pharmacological Sciences*, ponders whether such pills will achieve their potential therapeutic impact, at least in the near future.

"We have recognized the need for exercise pills for some time, and this is an achievable goal based on our improved understanding of the molecular targets of [physical exercise](#)," says coauthor Ismail Laher, of

the Department of Pharmacology and Therapeutics at the University of British Columbia in Vancouver.

Several laboratories are developing exercise pills, which at this early stage are being tested in animals to primarily target [skeletal muscle](#) performance and improve strength and energy use—essentially producing stronger and faster muscles. But of course the benefits of exercise are far greater than its effects on only muscles.

"Clearly people derive many other rewarding experiences from exercise—such as increased cognitive function, bone strength, and improved cardiovascular function," says Laher. "It is unrealistic to expect that exercise pills will fully be able to substitute for physical exercise—at least not in the immediate future."

While exercise pills may provide some benefits for people in the general population, they might be especially helpful for those who are unable to exercise for a variety of reasons, as the review by Laher and his coauthor Shunchang Li notes. "For example, a pill for people with spinal cord injury could be very appealing given the difficulties that these individuals face in exercising due to paralysis—in such patients, a large number of detrimental changes occur in cardiovascular and skeletal muscle function," explains Laher.

Much more research is needed to fully understand the side effects of candidate exercise pills, in addition to determining their optimal dosages, and the potential for misuse in humans and animals (e.g., races). (The first doping case regarding one candidate pill was reported in a cycling competition in 2013.)

"We are at the early stages of this exciting new field," says Laher. "Further development of exercise pills that act in combination may be more effective than single compounds. We just don't know anything

about their long-term use in humans yet."

More information: *Trends in Pharmacological Sciences*, Li and Laher:
"Exercise Pills: At the Starting Line?"
[dx.doi.org/10.1016/j.tips.2015.08.014](https://doi.org/10.1016/j.tips.2015.08.014)

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