

# Study finds that caffeine cuts post-workout pain by nearly 50 percent

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Athens, Ga. -- Although it's too soon to recommend dropping by Starbucks before hitting the gym, a new study suggests that caffeine can help reduce the post-workout soreness that discourages some people from exercising.

In a study to be published in the February issue of *The Journal of Pain*, a team of University of Georgia researchers finds that moderate doses of caffeine, roughly equivalent to two cups of coffee, cut post-workout muscle pain by up to 48 percent in a small sample of volunteers.

Lead author Victor Maridakis, a researcher in the department of kinesiology at the UGA College of Education, said the findings may be particularly relevant to people new to exercise, since they tend to experience the most soreness.

"If you can use caffeine to reduce the pain, it may make it easier to transition from that first week into a much longer exercise program," he said.

Maridakis and his colleagues studied nine female college students who were not regular caffeine users and did not engage in regular resistance training. One and two days after an exercise session that caused moderate muscle soreness, the volunteers took either caffeine or a placebo and performed two different quadriceps (thigh) exercises, one designed to produce a maximal force, the other designed to generate a sub-maximal force. Those that consumed caffeine one-hour before the maximum force test had a 48 percent reduction in pain compared to the placebo group, while those that took caffeine before the sub-maximal test reported a 26 percent reduction in pain.

Caffeine has long been known to increase alertness and endurance, and a 2003 study led by UGA professor Patrick O'Connor found that caffeine reduces thigh pain during moderate-intensity cycling. O'Connor, who along with

professors Kevin McCully and the late Gary Dudley co-authored the current study, explained that caffeine likely works by blocking the body's receptors for adenosine, a chemical released in response to inflammation.

Despite the positive findings in the study, the researchers say there are some caveats. First, the results may not be applicable to regular caffeine users, since they may be less sensitive to caffeine's effect. The researchers chose to study women to get a definitive answer in at least one sex, but men may respond differently to caffeine. And the small sample size of nine volunteers means that the study will have to be replicated with a larger study.

O'Connor said that despite these limitations, caffeine appears to be more effective in relieving post-workout muscle pain than several commonly used drugs. Previous studies have found that the pain reliever naproxen (the active ingredient in Aleve) produced a 30 percent reduction in soreness. Aspirin produced a 25 percent reduction, and ibuprofen has produced inconsistent results.

"A lot of times what people use for muscle pain is aspirin or ibuprofen, but caffeine seems to work better than those drugs, at least among women whose daily caffeine consumption is low," O'Connor said.

Still, the researchers recommend that people use caution when using caffeine before a workout. For some people, too much caffeine can produce side effects such as jitteriness, heart palpitations and sleep disturbances.

"It can reduce pain," Maridakis said, "but you have to apply some common sense and not go overboard."

Source: University of Georgia

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