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# Are Crunches Worth the Effort?

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For a [study published this year](#), researchers at Indiana State University had a group of healthy, young adults squat, lunge, twist, crunch and hold a rigid plank position to measure the hardness of their back, abdominal and side muscles, the area generally known as the core. The same volunteers then completed a battery of physical performance tests, including leaping off the ground while tossing a medicine ball backward over the head and sprinting through a short obstacle course.

The researchers had expected that the volunteers with the sturdiest cores would outshine the others on the tests of physical performance. But they did not. There was little correlation in this study between robust core muscles and athleticism. Despite the emphasis that many coaches, trainers and athletes themselves place on “core training for increased performance,” the authors write, “our results suggest otherwise” — and in the process raise some intriguing questions about just how core strength affects fitness and whether a rippling abdomen, while attractive, is worth the effort.

The role of the core in physical performance has been a topic of considerable interest and controversy among sports scientists, as well as coaches and trainers, for years. Most of us think that a taut midsection, achieved usually by multiple crunches and perhaps some

medicine-ball exercises and side planks, will make us not just less self-conscious in our swimsuits but also better athletes.

Findings about the effect of standard core exercises on athleticism, though, have been mixed. A [representative study of collegiate rowers](#), for instance, found that after eight weeks of an arduous core-exercise regimen — added to their normal workout routines — the rowers had great-looking abs but weren't better rowers; their performance was unchanged in a rowing-machine time trial, compared with measurements before they'd undertaken the extensive core routines.

But in [another study, this time of novice adult runners](#) who displayed weak core strength in preliminary testing, those who completed six weeks of core training drills lowered their five-kilometer run times significantly more than a control group of beginning runners who did not focus on their midsections.

How much core strength most of us need, how to achieve it, how to measure it and how to define core stability and core strength are questions that remain largely unanswered by available science, said Stuart McGill, a professor of spine biomechanics at the University of Waterloo in Ontario and author of the book “Ultimate Back Fitness and Performance,” as well as of numerous, much-cited studies of core performance. “Core performance is quite an involved concept,” he said.

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Even the importance or desirability of performing crunches, probably the most iconic and certainly the most common of core exercises, is uncertain. Research by Dr. McGill and others has shown that repeated bending of the spine, such as occurs when most of us do crunches, can over time contribute to damage of the spinal discs. When cadaver pig spines were placed in machines as part of a series of recent experiments and bent and flexed hundreds of times, the pigs' spinal discs almost always ruptured, eventually.

No one needs to perform hundreds or even dozens of crunches, said Brad Schoenfeld, a professor of exercise science at Lehman College in

the Bronx and an author of a newly published review article about core exercises titled ["To Crunch or Not to Crunch."](#) And while everyone needs some basic minimum of core strength — getting up out of a chair requires a certain amount of core strength; serving a tennis ball requires more — “six or eight crunches would be plenty,” he said, “and only a few times a week.”

It's also important you perform them correctly, Dr. McGill said. “Don't flatten your back into the ground,” he said. Instead, place your hands, palm down, beneath your lower back to lessen pressure on the spine. Bend your knees, and “pretend that your head and shoulders are resting on a bathroom scale,” he said. Lift them only enough to send the imaginary scale's reading to zero. “You don't need to crunch up very much” to achieve the desired workload on the abdominal muscles, he said.

Or forgo the crunches altogether. “Personally, I do not believe that it is necessary to specifically train the core,” said Thomas Nesser, an associate professor of exercise science at Indiana State and senior author of the study about core stability and performance. In most instances, if you “train for your sport, core strength will develop,” he said, and it will be the right amount and type of core strength for that sport.

But what about those taut, topo-map abs sported by celebrities like Mike Sorrentino, better known as The Situation from “Jersey Shore”? It's all about low body fat, Dr. McGill said, and not the crunches.