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Fitness fast -- if you can take it

High-intensity interval training, once the domain of elite athletes, has gone mainstream.

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For years, Michelle Cuellar exercised five days a week. "But you wouldn't have known it by looking at me," says the 33-year-old mother of two. "I felt fit -- but I was still fat."

No matter what Cuellar did -- run on the treadmill for 30 minutes at a time or attend the occasional spinning class or boot camp, her weight rose. By last summer, she carried 176 pounds on her 5-foot-6 frame.

Then, last fall, for the first time in her life, Cuellar started shrinking. She tried on a pair of pants "that hadn't fit since 1998 -- and they fit!" she says. "In eight weeks, 5 inches came off my butt, 2 inches off my stomach. The weight -- 7, 9, 12 pounds -- just started falling off."

Her breakthrough? "I started doing intervals," says the Centennial, Colo., woman.

Intervals -- short bursts of speed mixed into a running, biking, swimming, elliptical, rowing or other aerobic workout -- are nothing new for organized sports, where they've long been a tried-and-true method to build speed and power. What's new is that high-intensity interval training is being discovered by average people, who like the speed but love the side effects even more: weight loss, muscle toning and reduced workout time.

"Interval training is hot right now and getting hotter," says Joseph Grassadonia, publisher of Santa Cruz-based OnFitness magazine, which is targeted at personal trainers. "It's always been there, but we are writing more and more about it because it's simply the fastest way to get clients fit."

Cuellar says she trimmed 10 minutes from her workout time simply by replacing her old steady-state 30-minute, 6-mph treadmill jog with "Sprint 8," a 20-minute aerobic session peppered with eight 30-second, 8-mph sprints so intense that they left her gasping for breath.

Sprint 8, the centerpiece of the book "Ready Set Go! Synergy Fitness," by Phil Campbell, has a growing list of believers. Gary Green, 45, a Web-based businessman from Tustin,

says he halved his workout time and cycled off 25 pounds since switching to the program in August. Internet marketer Robert Burns of San Diego, 43, says he lost 25 pounds since May doing three swimming or running Sprint 8 workouts a week. "I feel younger and get faster and faster every day," he said.

They warn, however, that interval training is not a walk in the park. "At first, I could barely sprint at 5 mph," said 31-year-old Dan Conner, a Sacramento fitness store manager who lost 50 of his 265 pounds and 9 inches off his 45-inch waist since last May. "I was dying. I couldn't breathe. But now my sprints are up to 7 mph -- sometimes 8. They leave me gasping. I know that a lot of people don't want to push like this."

How intervals work

The key to improving one's level of fitness, trainers and sports scientists say, is shocking yourself.

"After a certain period of plodding along, doing the same steady-state jogging and cycling, you don't progress -- your body gets used to what you're doing," says Christopher Drozd, a Santa Monica strength and conditioning coach. "You have to literally shock your body off the plateau. If you push yourself to the limit [with intervals], you're going to get a new limit."

The phenomenon is known as the "stress adaptation response," says Leonard A. Kaminsky, director of the clinical exercise physiology program at the Ball State University human performance lab and editor of the exercise guidelines manual of the American College of Sports Medicine.

"The human body adapts to the stresses placed on it," he says. "Challenge it, and it improves. To effect change, you need to overload your system beyond what it is accustomed to. When you go beyond your aerobic threshold [the point at which you are unable to bring in enough oxygen to support the exercise] -- to where you perceive that you're getting winded -- you initiate a chain of positive events that work for everyone. Even nursing-home populations can improve."

Intervals improve fitness by upgrading the oxygen-processing system with new capillaries and stronger lungs and heart, adding more mitochondria (tiny cellular motors) to muscles, and developing a higher tolerance to the buildup of lactic acid, a waste product associated with going anaerobic (into oxygen-debt). A 2005 study of competitive cyclists at New Zealand's Waikato Institute of Technology even found that intervals can speed up serious athletes in midseason form; eight to 12 sessions gave test subjects power gains of 8.7% for 1 kilometer and 8.1% for 4 kilometers over a control group of non-interval trainers.

But it is the unexpected weight loss, time savings and sense of "feeling younger" that have average exercisers most excited.

The latter may partially come from a temporary increase in the release of human growth hormone, which radically declines with age. A 2002 University of North Carolina at Greensboro study published in *Sports Medicine* found that all exercise, both aerobic and strength training, stimulates the release of the hormone, and that greater exercise intensity -- as in interval training -- stimulates greater release. Human growth hormone is known for many positive effects, including development of lean muscle mass.

Intervals' time-saving effect was documented in a 2006 study published in the *Journal of Physiology*. The test found equal increases in fitness between six short bouts of interval training over two weeks (20-minute cycling workouts, consisting of repetitive 30-second all-out efforts each followed by four minutes of recovery) and six longer, moderate-paced sessions (90 to 120 minutes a day) over two weeks.

Interval-spawned weight loss, surprisingly, does not mostly come from the interval training itself (intervals use fast-burning glycogen, not slow-burning fat, as fuel), but from its long-known aftereffect: It ramps up the metabolism.

Back in 1985, a study in the *American Journal of Clinical Nutrition* found that high-intensity training ramps up metabolism for 24 hours afterward, whereas low-intensity training does not. A 1991 study in the *International Journal of Obesity* found that more exercise intensity, not more duration, provoked increased post-exercise oxygen consumption. And a study published in December in the *Journal of Applied Physiology* and conducted by a team at Canada's University of Guelph found that just two weeks of alternate-day interval training increased moderately active 22-year-old women's fat-burning ability by 36%.

All this may help explain why Michelle Cuellar gained weight with regular exercise -- until she added intervals.

"Given that resting metabolism does decline as you get older, it is not uncommon to see regular exercisers add a pound or 2 per year over time," says Kaminsky. "Either that, or Michelle was stopping at Starbucks a couple times a week" -- a charge she denies.

How fast, how much?

What type of intervals are best? All-out, lung-heaving efforts for 30 seconds followed by low-intensity recovery for two or three minutes, a la Sprint 8, or longer-lasting, less-intense efforts with shorter recovery periods in between?

The latter have plenty of success stories too.

Chad Kolakowski, a 27-year-old golf company executive from Austin, Texas, says he dropped from 290 to 230 pounds in eight months by using Momentum, a three-day-a-week, 25-minute workout program that features three-minute intervals followed by a minute of recovery.

Designed by Broomfield, Colo.-based Breakthrough Health & Fitness, the program requires the user to wear a heart-rate monitor to help gauge perceived levels of exertion.

"The cool thing is that you only need to push hard for three minutes at a time before you get to rest," says Kolakowski, who mixes some cycling and swimming in with his running workouts. "Anyone can push for three minutes."

Adds John Lindahl of Boulder, Colo., 45, a corporate program manager who says he lost 50 pounds and 9 inches off his waistline with Momentum: "In corporate America, we need a more efficient workout because we all have less time nowadays."

The fact that super-intense Sprint 8 and moderately intense Momentum are both effective is good news. "Ironically, you can't do the same intervals all the time -- you'll stagnate," says Drozd, the Santa Monica trainer. "You need variation -- for your body and your mind. For best fitness, mix short intervals and long intervals. Whatever you choose to do, do it hard."

The New Zealand study showed cyclists' performance gains plateauing after eight to 12 interval sessions. "To keep increasing your fitness after six weeks of intervals," says OnFitness' Grassadonia, "be creative: push it even harder or longer, add hills, stairs, cross-training. I'm a 55-year-old big-wave surfer, but I can hang with 20-year-olds because I do very intense 10 mph sprinting on the treadmill, all-out sprints in the pool -- constantly mixing it up."

Going hard, however, may be a problem for some. "I find Sprint 8 invigorating," says Green of Tustin. "But I don't know if it's for everybody. It's a pretty hard workout -- mentally and physically." Physically, although interval training can often be safer than regular steady-state aerobics because it cuts exercise time and minimizes the repetitive motion that often leads to injury, it can also initially be risky for joints, tendons and muscles used to less intensity.

"So ramp up slowly over two to three weeks," says Breakthrough founder Jonathan Roche. "Guys, in particular, will go all-out and waste themselves." Properly done, a high-intensity work interval should be followed by a low-intensity rest interval that allows your heart rate to recover, or come down to a level where you're breathing comfortably. Generally, the more intense the work interval, the longer the rest interval.

From a psychological perspective, intervals are tricky.

"They're more fun because we like to be challenged to do better, but they are more gut-wrenching and grueling," says Ron Jones, an Atlanta- and L.A.-based corporate wellness coach. "Although we know that lukewarm goals don't work very well, too-hard ones can frighten you away."

Like Roche, he advises taking it easy at first with slower, shorter efforts. "I've had people do five-second intervals," he says. "Then slowly -- slowly -- build on that success."

Remember that it takes three weeks to psychologically form a new habit, and six months to change a behavior. Even seeing the physical changes that come with interval training may not be enough to let you stick with it. You have to feel good about what you are doing."

Cuellar, now 20 pounds lighter than six months before, thinks she's gotten to that point. "My husband has offered to buy me a whole new wardrobe," she says. "But I told him to wait until I get down to a size 6."