

Exercise ‘Snacks’ To Control Blood Sugar

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Multiple, brief, snack-sized portions of exercise may control blood sugar better than a single, continuous workout, according to new research that adds to a growing body of evidence about the wisdom of spreading exercise throughout the day.



For some time, scientists have been intrigued by the idea that breaking up exercise into repeated, short sessions might be as beneficial as longer workouts, and most related experiments to date have been encouraging. **In a 2012 study of people with symptoms of hypertension, for instance, volunteers controlled their blood pressure better throughout the day if they completed three 10-minute walks rather than one 30-minute stroll.**

But little research in this area had been directed at people with blood sugar problems. So, for the new study, published this month in *Diabetologia*, scientists in New Zealand recruited nine adult men and women with medically confirmed insulin resistance, a common precursor of Type 2 diabetes. The scientists checked their volunteers' general health, aerobic capacity and blood sugar responses to food. As would be expected, the volunteers developed severely elevated blood sugar after they ate, an unhealthy condition that continued for hours.

The researchers then asked their participants to exercise in the lab on three separate occasions. During one session, the men and women walked on a treadmill at a moderate pace for 30 minutes, finishing half an hour before dinner. Their blood sugar levels were tracked that day and into the next.

On the other occasions, the volunteers broke their workouts into three, bite-size portions, which the researchers helpfully dubbed “exercise snacks,” undertaken shortly before breakfast, lunch and dinner. In one case, these snacks consisted of high-intensity intervals, with the volunteers walking as fast as they could manage for one minute on a treadmill, powering down to a gentle stroll for an additional minute, and repeating that sequence six times, for a total of 12 minutes.

In the final session, the volunteers again completed three walking intervals, but these were interspersed with a minute of high-intensity, upper-body resistance training using stretchy bands. The volunteers would walk for a minute, rest, hurry from the treadmill to the bands, perform as many pulling and wood-chopping types of exercises as possible in a minute, rest, then rush back to the treadmill to complete another walking interval. The total exercise time, again, was 12 minutes, and the sessions were repeated before each meal.

The results were striking. Physical activity of any kind is, of course, known to lower and regulate blood sugar levels, because contracting muscles draw sugar from the bloodstream to fuel their efforts. And that finding was reaffirmed here. **After the 30-minute walk, the participants’ post-dinner blood sugar levels were lower than they had been in the baseline testing. But only with the two snacking-style workouts were those effects visible throughout the day, not just after dinner, and they lingered, with volunteers’ blood sugar remaining lower than during the baseline testing for about 24 hours after a day of exercise snacking.**

The message for those hoping to keep their blood sugar under control is that brief bouts of exercise several times during the day are likely to be more effective than a single session, said James D. Cotter, a professor at the University of Otago in Dunedin, New Zealand, who, with his doctoral student Monique Francois, primarily conducted the research. It seems to help, too, if the exercise morsels are taxing. “High-intensity exercise shows a more potent effect” on blood sugar than more-moderate exertion, Dr. Cotter said.

Of course, few people have a treadmill handy to allow for frequent quick bursts of exercise. But, Dr. Cotter said, such equipment is not necessary. Any activity that rapidly raises your heart rate and leaves you panting and sweaty for 60 seconds can substitute for treadmill intervals, he said.

“For some people, simply walking anywhere will provide ample stimulus, whereas fitter individuals might need to go up one or even a few flights of stairs or up a slope, or jog somewhere. Jogging on the spot would be just as good,” he said.

The key is to exert yourself to the point that the exercise feels like about a nine or so on a scale of one to 10, he said. (Check with your doctor first before beginning any new exercise program, of course.) Maintain that level of exertion for a minute; slow down for



a minute; and repeat several times. Complete several of these exercise hors d'oeuvres during the day.

Exercise snacking may not be the ideal way to achieve all health goals, however, Dr. Cotter said. For example, "whether it is optimal for controlling fat mass," he said, "is still unclear despite much research."

But exercise snacking did have one signal advantage in his study. The volunteers enjoyed it far more than the longer, sustained workout, Dr. Cotter said, meaning that, as with snacking in general, they were willing to come back for more.

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