Study demonstrates that exercise following bariatric surgery provides health benefits

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Exercise after weight loss surgery decreases risk of type 2 diabetes. Credit: NYUL

A new study by researchers at the Florida Hospital - Sanford-Burnham Translational Research Institute for Metabolism and Diabetes (TRI-MD) shows that patients who moderately exercise after bariatric surgery (weight-loss surgery) gain additional health improvements in glucose metabolism and cardiorespiratory fitness compared to patients who lead

a sedentary lifestyle after surgery. The findings confirm the physiological and potential clinical benefits of adding an exercise regime following weight-loss surgery.

"This is the first randomized, controlled clinical study that examines the effects of exercise on insulin sensitivity and other cardio and metabolic risk factors following bariatric surgery," said Bret Goodpaster, Ph.D., director of the Exercise Metabolism Core, senior investigator at the TRI-MD, and professor at Sanford-Burnham Medical Research Institute. "The data support the inclusion of an exercise program following bariatric surgery to further enhance the health of individuals who opt for surgery to lose weight."

Study Results

The study, published in *The Journal of Clinical Investigation*, examined two groups of patients that had recently undergone Roux-en-Y bypass (RYGB) bariatric surgery. The first group participated in an education program after surgery and the second group participated in the education program plus an exercise program after surgery. The education program consisted of six sessions per month and included lectures, discussions, and demonstrations providing up-to-date information on topics such as medication use, nutrition, and upper-body stretching. The exercise group performed 120 minutes per week of exercise. A total of 119 participants completed the 24-week study.

Compared to the education group, the exercise group showed significant improvement in insulin sensitivity and glucose metabolism. Low insulin sensitivity and poor glucose metabolism can cause type 2 diabetes, and are associated with the risk of developing the disease. Both are common in pre-diabetes—a condition that means your blood-sugar level is higher than normal but not high enough to be classified as type 2 diabetes.

The exercise group also showed significantly improved cardiorespiratory fitness—a reference to the ability of the circulatory and respiratory system to supply oxygen to muscles during exercise. Cardiovascular fitness reduces the risk of heart disease, type 2 diabetes, lung cancer, and stroke, and is an effective predictor of future mortality.

Although both groups lost weight—approximately 50 lbs.—as a result of RYGB surgery, there were no differences in the total amount of weight loss between the two groups.

"Importantly, our study showed that aerobic exercise is feasible in this population—a result that directly counters the perception that severely obese individuals cannot respond to lifestyle interventions," said Goodpaster. "Moreover, we have identified specific, non-weight-related health benefits that exercise confers on these individuals. We look forward to additional studies to determine the optimal amount and type of exercise that produces the best physiological results."

Bariatric Surgery

Bariatric surgery is a surgical procedure recommended by the U.S. National Institutes of Health (NIH) for clinically obese individuals that have a body mass index (BMI), a measurement based on height and weight, of 40.That translates to 294 pounds for someone who is six feet tall, and 218 pounds for someone who is five feet two. More than 200,000 individuals undergo bariatric surgery each year in the U.S.

The Roux-end-Y bypass (RYGB) gastric bypass surgery is the most commonly performed metabolic surgery in the U.S. The surgery involves taking a small part of the stomach to create a new stomach pouch, roughly the size of an egg. The smaller stomach is connected to the small intestine at a location that limits the amount of food you can eat and causes food to bypass the stomach and small intestine to reduce the

amount of fat and calories you can absorb from food.

More information: Clinical trial demonstrates exercise following bariatric surgery improves insulin sensitivity, *J Clin Invest.* doi:10.1172/JCI78016

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