

For obese teen girls, aerobic exercise may trump resistance training in health benefits

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Obesity has more than doubled in children and tripled in adolescents in the United States in the past 30 years, according to the Centers for Disease Control and Prevention. The growing rate of childhood obesity is a major health concern since overweight and obese youth are at increased risk of developing several diseases once considered reserved for adults. These new pediatric diseases include type-2 diabetes, metabolic syndrome, and non-alcoholic fatty liver disease, a condition in which fat builds up in the liver, potentially impairing its function over time. Although both diet and exercise have been considered as first lines to treat childhood obesity, SoJung Lee of the Children's Hospital of Pittsburgh, University of Pittsburgh School of Medicine and her colleagues recently showed that when obese adolescent boys increased physical activity alone, they improved several markers of health. These include reducing total fat, fat packed around organs in the abdomen (known as visceral fat, a risk factor for diabetes), and liver fat, and improving fitness of their heart and lungs.

To see if [physical activity](#) might work in the same way for obese adolescent girls, Lee and her colleagues performed a new study that compared the health effects of two different types of exercise—aerobic exercise and weight lifting—over three months to remaining sedentary. Although their results show beneficial effects for both types of exercise, the researchers found that girls who performed aerobic exercise, but not weight lifting, had significant reductions in visceral fat and [liver fat](#), as well as improvements in insulin sensitivity, another risk factor for diabetes that's linked with obesity.

The article is entitled "[Aerobic Exercise But Not Resistance Exercise Reduces Intrahepatic Lipid Content and Visceral Fat and Improves Insulin Sensitivity in Obese Adolescent Girls](#)". It appears in the online edition of the *American Journal of Physiology-Endocrinology and Metabolism*, published by the American Physiological Society.

Methodology

The researchers recruited 44 obese girls between 12 and 18 years old. They separated these volunteers into three groups. One group was assigned to perform 60 minutes of aerobic exercise three days a week for three months, either running on a treadmill or using an elliptical trainer. A second group was assigned to perform the same amount of resistance exercise, but instead participated in aerobic exercise program, doing 10 whole body resistance exercises using weight machines over the course of each hour-long session. A third group was asked not to participate in any structured physical activity program over the course of the study. Before the exercise programs began, all the study participants had a detailed physical exam, which included measuring their total fat, [visceral fat](#), liver fat, and fat embedded in their muscles through various noninvasive means. The researchers also measured the volunteers' insulin sensitivity, a risk factor for diabetes, as well as basic health measures including weight and physical fitness.

Results

The researchers found that those in both [exercise groups](#) had less total fat and intramuscular fat by the end of the three-month study period compared to the sedentary group. However, the two exercise groups differed significantly in other measures. Overall, those in the aerobic exercise group lost visceral and liver [fat](#) and improved their [insulin sensitivity](#), but those in the other groups didn't.

Importance of the Findings

These findings suggest that for teen girls, aerobic exercise might be superior to resistance exercise for cutting health risks associated with obesity. They also note that, anecdotally, girls in the aerobic exercise group seemed to enjoy their workouts more than those in the [resistance exercise](#) group, an opposite sentiment from the obese boys in their previous study.

"Therefore, given the superior improvements in metabolic health with aerobic exercise and the enjoyment factor, we propose that [aerobic exercise](#) may be a better mode of exercise for adolescent girls of this age group," they write.

Provided by American Physiological Society

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