

# Exercise regimens offer little benefit for one in five people with type 2 diabetes

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As many as one in five people with Type 2 diabetes do not see any improvement in blood sugar management when they engage in a supervised exercise regimen, according to a new scientific review published in the Endocrine Society's *Journal of Clinical Endocrinology & Metabolism*.

People develop Type 2 [diabetes](#) when their bodies become resistant to the hormone insulin, which carries sugar from the blood to cells. This leads to excess sugar in the bloodstream. The U.S. Centers for Disease Control and Prevention projects about 40 percent of Americans will develop diabetes within their lifetime.

"Since obesity and lack of physical activity are two key risk factors for Type 2 diabetes, physicians frequently recommend exercise and other lifestyle interventions to prevent or manage the disease," said one of the study's authors, Lauren Marie Sparks, PhD, of Florida Hospital and the Sanford-Burnham Medical Research Institute in Orlando, FL. "Most people benefit from an [exercise regimen](#), but our research indicates that a significant minority of individuals with Type 2 diabetes do not experience the same improvements in metabolism due to their genes."

The scientists examined clinical studies where people with Type 2 diabetes participated in exercise regimens, as well as animal and genetic studies on the topic.

The researchers found that around 15 percent to 20 percent of

individuals with Type 2 diabetes did not see any improvement in their blood sugar control, insulin sensitivity or a measurement of fat-burning capabilities called muscle mitochondrial density. Genetic and animal studies indicate this resistance to exercise is encoded in DNA and can be handed down through generations.

"More research is needed to determine which people with or at risk of developing Type 2 diabetes will respond to an exercise program and which will not," Sparks said. "Genetic and epigenetic patterns could hold the key to differentiating between the two groups. With that information in hand, we can target specific interventions and treatments to the individuals who will benefit most and identify novel treatment approaches to help those who do not respond to [exercise](#)."

**More information:** The study, "Resistance to the Beneficial Effects of Exercise in Type 2 Diabetes: Are Some Individuals Programmed to Fail?", was published online, ahead of print.

Provided by The Endocrine Society

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