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Exercise-induced improvements in glycemic control and type 2 diabetes

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Exercise-induced improvements in glycemic control are dependent on the pre-training glycemic level, and although moderate-intensity aerobic exercise can improve glycemic control, individuals with ambient hyperglycemia (high blood glucose) are more likely to be nonresponders, according to a research letter by Thomas P. J. Solomon, Ph.D. of the Centre of Inflammation and Metabolism, Copenhagen, Denmark, and colleagues.

A total of 105 older (average age 61 years), overweight or obese individuals with impaired glucose tolerance or type 2 diabetes mellitus (T2DM) participated in a 12-to 16-week period of aerobic exercise training. Researchers measured the participants' body composition, aerobic fitness, and glycemic control, and assessed the relationships between pre-intervention variables and intervention-induced changes.

Average change in body weight, whole-body fat, fasting plasma glucose and 2-hour oral glucose tolerance test (OGTT) were significantly improved following exercise training. However, researchers found that aerobic exercise-induced improvements in glycemic control were reduced by ambient hyperglycemia, particularly in participants with T2DM.

"The clinical relevance of these new findings is paramount and highlights the need to understand the metabolic "nonresponder." Because chronic hyperglycemia…potentially predicts a poor therapeutic effect of aerobic exercise on glycemic control and fitness, using exercise to treat

patients with poorly controlled T2DM may have limited chances of a successful outcome," the study concludes.

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