

Teens targeting strength, cardio fitness battle insulin resistance

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Lower levels of abdominal muscle strength and cardiorespiratory fitness in youth are independently associated with adverse levels of fasting insulin, insulin sensitivity, and β -cell function in young adulthood, according to a study published online April 11 in *Diabetes Care*.

(HealthDay)—Lower levels of abdominal muscle strength and cardiorespiratory fitness (CRF) in youth are independently associated with adverse levels of fasting insulin, insulin sensitivity, and β -cell function in young adulthood, according to a study published online April 11 in *Diabetes Care*.

Anders Grøntved, M.P.H., from the University of Southern Denmark in Odense, and colleagues analyzed data from 317 youth prospectively followed for 12 years. The participants had measurements taken in youth for maximal voluntary contractions during isometric back extension and abdominal flexion using a strain-gauge dynamometer, while CRF was obtained from a maximal cycle ergometer test. Additionally, fasting

serum insulin and glucose were measured during youth and in young adulthood.

The researchers found that for each one standard deviation difference in isometric muscle strength (0.16 N/kg) in youth, fasting insulin, homeostasis model assessment of insulin resistance (HOMA-IR), and HOMA of β -cell function (HOMA-B) in young adulthood changed by -11.3 , -12.2 , and -8.9 percent, respectively, in [young adulthood](#). These findings were after adjusting for CRF, personal lifestyle, and demographic factors. Results were consistent even with additional adjustment for general or abdominal adiposity in youth. There was an additive combined association between muscle strength and CRF with fasting insulin, HOMA-IR, and HOMA-B. Adolescents in the highest sex-specific tertile for both isometric muscle strength and CRF had the lowest levels of these [glucose metabolism](#) outcomes.

"Increasing muscle strength and CRF should be targets in youth primordial prevention strategies of [insulin resistance](#) and β -cell dysfunction," the authors write.

More information: [Abstract](#)

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