

# Physical activity independently predicts bone strength in teens

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(HealthDay)—Moderate-to-vigorous physical activity (MVPA) is an

independent predictor of bone strength at the tibia and radius in adolescents, according to a study published online March 23 in the *Journal of Bone and Mineral Research*.

Leigh Gabel, from the University of British Columbia in Vancouver, Canada, and colleagues examined the prospective associations between PA, [sedentary time](#), and [bone strength](#) during adolescence. High resolution peripheral quantitative computed tomography was used at distal tibia and radius in 173 girls and 136 boys. Four annual measurements were conducted at the tibia and radius (785 and 582 observations). MVPA and sedentary time were assessed with accelerometers.

The researchers found that MVPA was a positive [independent predictor](#) of bone strength and bone volume fraction at the tibia and radius, and of total area and cortical porosity at the tibia. MVPA was a negative predictor of load-to-strength ratio at the radius. Sedentary time negatively predicted total area at both sites and cortical porosity at the tibia, and positively predicted cortical thickness, trabecular thickness, and cortical bone mineral density at the tibia. Maturity-specific associations were seen for MVPA and sedentary time with bone parameters, with the strongest associations during early and mid-puberty.

"Our findings support the importance of PA for bone strength accrual and its determinants across adolescent growth and provide new evidence of a detrimental association of sedentary time with [bone](#) geometry but positive associations with microarchitecture," the authors write.

**More information:** [Abstract](#)  
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