

# Waist-to-height ratio bests BMI for predicting fat mass in children

April 6 2024, by Lori Solomon

---



Waist circumference-to-height ratio (WHtR) is an inexpensive alternative to body mass index (BMI) for predicting fat mass (FM) in pediatric patients, according to a study published online March 5 in *Pediatric Research*.

Andrew O. Agbaje, M.D., Ph.D., from the University of Eastern Finland

in Kuopio, examined agreement of surrogate measures of adiposity with dual-energy X-ray absorptiometry-measured body composition. The analysis included 7,237 9-year-old children participating in the Avon Longitudinal Study of Parents and Children, with 15-year follow-up data.

Agbaje found that during follow-up, BMI, total FM, and trunk FM increased, but WHtR was relatively stable. Over time, WHtR provided better absolute agreement with total FM as well as trunk FM (males: intraclass correlation [ICC], 0.84; females: ICC, 0.81) compared with BMI (males: ICC, 0.65; females: ICC, 0.72). For predicting excess total FM (75th to 95th percentile), the WHtR cut point was 0.50 to 0.53 in males (area under the curve [AUC], 0.86 to 0.94; sensitivity: 0.51 to 0.79; specificity: 0.93 to 0.95). In females, the WHtR cut point for predicting excess total FM was 0.52 to 0.54 (AUC, 0.83 to 0.95; sensitivity: 0.38 to 0.68; specificity: 0.92 to 0.95). For trunk FM, results were similar.

"This study provides novel information that would be useful in updating future childhood obesity guidelines and policy statements," Agbaje said in a statement. "The average waist circumference-to-height ratio in childhood, adolescence, and young adulthood is 0.45; it does not vary with age and among individuals like BMI."

**More information:** Andrew O. Agbaje, Waist-circumference-to-height-ratio had better longitudinal agreement with DEXA-measured fat mass than BMI in 7237 children, *Pediatric Research* (2024). [DOI: 10.1038/s41390-024-03112-8](https://doi.org/10.1038/s41390-024-03112-8)

Copyright © 2024 [HealthDay](https://www.healthday.com). All rights reserved.

Citation: Waist-to-height ratio bests BMI for predicting fat mass in children (2024, April 6)  
retrieved 2 May 2024 from

<https://medicalxpress.com/news/2024-04-waist-height-ratio-bests-bmi.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.