

Assessing body fat in children made simpler by new equation

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Researchers at St George's have developed an accurate equation that will enable medical professionals to accurately predict body fat levels in children using only very simple measurements and other information.

The equation takes into account height, weight, sex and age and ethnicity (where available) to predict body fat.

The equation has been derived using information from four UK studies which used deuterium dilution assessments (a reference method) to measure body fat on 2375 UK children and adolescents. The final equation was tested both in these four study datasets and in an independent study of children, the Avon Longitudinal Study of Parents and Children (ALSPAC) study who also underwent deuterium dilution assessments of body fat.

The researchers assessed the predictive ability of the equation, comparing the estimates of fat mass from their derived equations to those obtained by direct measurements. They found a very strong relationship between the two.

The measure is potentially more useful, and more accurate, than existing Body Mass Index (BMI) data, based on weight/height² which does not provide information of the breakdown of weight into fat and fat free mass.

Mohammed Hudda, British Heart Foundation Ph.D. student and Research Fellow in Medical Statistics, said: "[Our approach will allow health professionals](#) to quickly and accurately estimate fat levels in the child they are treating using information they will already have at their fingertips. This would provide them with more information about their patient and allow them to make more informed decisions."

The [equation](#) can be used in children aged 4-15 years with accurate results across the age range.

More information: Mohammed T Hudda et al. Development and validation of a prediction model for fat mass in children and adolescents:

meta-analysis using individual participant data, *BMJ* (2019). [DOI: 10.1136/bmj.14293](https://doi.org/10.1136/bmj.14293)

Provided by St. George's University of London

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