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Opinion Article

Obesity in Pediatrics and its Effect on Cardiometabolism

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DESCRIPTION

A serious hazard to the public's health is childhood obesity. Estimates of its occurrence are established based on the definition criteria used, with clear implications for clinical care and surveillance. In order to screen for paediatric obesity, rather than diagnose it, Body Mass Index (BMI) was advised. Indeed, total body fat and cardiometabolic risk variables are correlated with BMI. Although a higher BMI in children is linked to increased blood pressure, cholesterol levels, and other risk factors for cardiovascular disease in adults, it is unclear what this means for the long-term cardiometabolic health of children.

Statistics are used to define childhood obesity rather than risk factors. Current classifications are based on arbitrary BMI percentile cutoffs. In order to identify children who may require extensive therapy, there is a considerable interest in identifying children with Severe Obesity (Sev-OB). This is because the prevalence of overweight is rising. On the definition of Sev-OB in children, there is currently no universal agreement. Percentile-based approaches are frequently employed in clinical practice and are easier for patients and their families to comprehend. According to experts, Sev-OB should be defined as BMI at the 99th percentile or BMI at 1.2 times the 95^{th} percentile; the latter definition is consistent with the definition of Sev-OB in adults (class 2, BMI 35, or roughly 1.2 times the BMI 30 cut point). There are various BMI guidelines available today, but the ones that are most frequently used are those from the CDC or the WHO. Both the CDC and the WHO systems provide values of BMI at the 99^{th} percentile that are specific for gender and age; the former were extrapolated from the CDC's Lambda-Mu-Sigma (LMS) values estimated on nationally representative growth charts derived from the 1999–2004 National Health and Nutrition Examination Survey (NHANES); the latter were provided from the newly statistically reconstructed curves that used the core sample of the original National Center for Health Statistics.

Body weight was measured to the nearest 0.1 kg by accurate and properly calibrated standard beam scales, in minimal under clothes and without shoes. Using standard wall-mounted height boards and standard techniques, height was measured to the nearest 0.5 cm. Feet, hips, and scapulae were against the vertical backboard while the person stood there. Hands were facing medially, and arms were loose and at ease. The head was carefully positioned in the Frankfurt plane, which places the upper margin of the external auditory meatus and the lower edges of the orbit in the same horizontal plane. Weight was divided by the square of height (kg/m^2) to determine the BMI. The specialised training in anthropometry, measured each participant's height and weight. For the analysis, the average of the two height measurements that were the closest together was used; if a difference of 0.5 cm or more was discovered, a third measurement was taken.

A mercury sphygmomanometer was used to measure Blood Pressure (BP) in accordance with a set methodology. In a nutshell, the cuffs had widths that spanned at least two-thirds of the upper arm and bladders that were long enough to wrap at least one half of the upper arm without overlapping. For analysis, the mean of three BP readings was employed.

The CDC system saw an increase in sensitivity from 58.5% (99^{th} percentile) to 73.9% in detecting patients with clustering cardiometabolic risk (1.2 times the 95^{th} percentile). In general, the CDC system-based definition had a greater LR+ than the corresponding WHO system. For example, according to the CDC, a child with two or fewer cardiometabolic risk factors was 1.38 times more likely to have a BMI below the 99^{th} percentile than a child without the same risk factors, however, according to the WHO, the likelihood was just 1.07 times higher. Kappa coefficients using the BMI 99^{th} percentile showed a slender agreement between development curves, with slightly higher values in boys than in girls and in younger children than in older ones. In boys and children under the age of 10, kappa coefficients were greater than 0.60 using the 1.2 times the 95^{th} percentile, showing strong agreement between the CDC and WHO growth curves.

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