External validation of equations to estimate resting energy expenditure in 2037 children and adolescents with and 389 without obesity: a cross-sectional study.

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We performed an external cross-validation study of 10 equations to estimate resting energy expenditure (REE) in 2037 children with and 389 without obesity. Inclusion criteria were Caucasian ethnicity, age ≤ 18 years, and availability of REE. REE was measured using indirect calorimetry. The correct classification fraction (CCF) of an equation was defined as the fraction of subjects whose estimated REE was within 10% of measured REE. The Molnár equation was the most accurate REE prediction equation with CCFs of 0.70 (95% CI 0.65 to 0.76) in girls without obesity, 0.64 (95% CI 0.61 to 0.66) in girls with obesity, 0.76 (95% CI 0.67 to 0.83) in boys without obesity, and 0.66 (95% CI 0.63 to 0.69) in boys with obesity. The Mifflin equation was the second most accurate equation with CCFs of 0.67 (95% CI 0.61 to 0.73) in girls without obesity, 0.61 (95% CI 0.58 to 0.64) in girls with obesity, 0.75 (95% CI 0.66 to 0.82) in boys without obesity, and 0.66 (95% CI 0.63 to 0.69) in boys with obesity.