



Body Mass Index/BMI Percentile: Definition and Identification

STEP 1 - PREVENTION (5 + 2 + 1 + 0 MESSAGING)

STEP 2 - IDENTIFICATION (BMI PERCENTILE)

STEP 3 - ASSESSMENT AND MANAGEMENT

Pediatric obesity

- is a medical condition in which fat deposits are sufficient to pose risk factors to one's health
- is an excessive proportion of body fat in relation to lean body mass
- is best screened for and clinically defined by BMI percentile, not BMI number alone (as in adults)
- *cannot be diagnosed by clinical impression*

Terminology	Children (ages 2-17)	Adults (ages ≥18)
Healthy Weight	BMI >5th and <85th percentile for age and gender	BMI from 18.5 to 24.9
Overweight	BMI ≥85th and <95th percentile for age and gender (previously termed "at risk for overweight")	BMI from 25 to 29.9
Obese	BMI ≥95th percentile for age and gender (previously termed "overweight")	BMI ≥30

Identification of risk factors for obesity in the healthy-weight child

1. Obesity of the biological parents:

- Having one obese parent gives a young child three times the odds of being an obese adult.
- Having two obese parents gives that same child 10 times the odds (compared with children who have two healthy-weight parents).

and/or

2. Trajectory of the BMI percentile curve:

- Children who rapidly increase their BMI percentile over a relatively short period of time or who cross two major BMI percentile curves are at risk for developing obesity.

Identification of pediatric obesity

BMI percentile

- Calculated by using age, gender and an *accurate* weight and height
- Easy, quick, reproducible
- BMI number = weight (kg) ÷ [height (m)]²
- BMI percentile calculated by
 - 1) plotting on standardized BMI growth charts
 - 2) using computerized BMI calculator or BMI wheel (CDC Web site: <http://apps.nccd.cdc.gov/dnpabmi/Calculator.aspx>)
- Rarely, in highly-trained athletes with increased muscle mass, BMI percentile may be an inaccurate method for obesity screening.

Additional tests specialists may use to identify pediatric obesity:

- Skin-fold thickness (i.e. triceps)
- Waist circumference
- Waist-to-hip ratio (WHR)
- DEXA scan
- Bioelectrical impedance analysis (BIA)
- Underwater (hydrostatic) weighing
- MRI or CT scan

Clinical judgment (a.k.a. "eyeballing") is highly inaccurate and should *never* be used to identify pediatric obesity.