

## Optimal-Weight Management through Diet, Exercise and Lifestyle Adjustment

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**Fig. 1. Determining mass of a girl**

A child or an adult is wasted (obese), when the incumbent has lesser (excess) weight-for-height. Body-mass index (*BMI*) is, routinely, used to estimate status of wasting (obesity). To obtain *BMI* of a person, one should divide mass of an individual (in *kilograms*) by square of height (in *meters*). This index has its strong as well as weak points. It fails to consider factors like body-frame size and muscularity. Further, it is based on wrong assumptions about distribution of fat and lean masses in the body. As the person reaches old age, there occurs a decrease in height, resulting in reduction of *BMI*, although the mass is unchanged. *BMI*, also, fails to establish a universal threshold for overweight and underweight conditions, since there are inter- and intra-region variations in body compositions, the later one caused by the presence of different ethnic groups within the same region. In 2010, Okorodudu, Jumean, Montori, Romero-Corral, Somers, Erwin and Lopez-Jimenez assessed the performance of *BMI*. They concluded that *BMI* has a high specificity but a low sensitivity to identify adiposity. For children, *BMI* range, used for estimating statuses for adults, is not valid. Their *BMI* can be interpreted only through tables. In 2012, *estimated-adult BMI* <http://www.ngds-ku.org/Papers/J30.pdf> was defined to predict obesity status of children when they reach adulthood. Earlier, the first author introduced the concept of *optimal mass (weight)* <http://www.ngds-ku.org/Papers/J29.pdf> defined as an alternate to *BMI*. Height percentile of an adult (a child) was computed using linear (box) interpolation, reverse process applied to the corresponding mass percentile to compute optimal mass. In a 2010-2011 preliminary study <http://www.ngds-ku.org/Presentations/Physics3-4.pdf> our group found a high prevalence of wasting in students of Karachi. To put on weight, a person should consume potato items as well as diet with high-protein content (meat, fish, milk, *etc.*). Such individuals should stay away from fiber-rich food. Their exercise routine should consist of heavy exercises, performed consistently, for shorter duration during a typical day. To reduce weight, an individual's diet should include salad and yogurt. Obese individual's exercise routine should consist of light exercises <http://www.ngds-ku.org/Presentations/Fitness.pdf> performed consistently, for longer duration during a typical day. An unhurried and complete breakfast, followed by a proper lunch and a relaxed dinner at appropriate timings, accompanied by 10-12 glasses of water during a single day and night, are needed to get maximum nutritional value. Junk food and snacks should be avoided, except mid-morning ones. The importance of a wholesome breakfast cannot be underestimated. Schools should take a proactive role in this endeavor by establishing a column in student diaries, where parents can enter breakfast items taken in the morning. Those students, who come to school without having breakfast, may be asked to first have their breakfast and then join classes. The parents of school-going children should realize that diet-based interventions would work, provided the student is not suffering from vitamin-D deficiency, which may weaken eyesight and cause backache, chronic fatigue, muscular and joint pain <http://www.ngds-ku.org/Presentations/VitaminD.pdf> — another approach to manage weight of children is to take measures to increase their heights: desired courses of action for children, who are short for age [http://www.ngds-ku.org/Presentations/Height\\_Management.pdf](http://www.ngds-ku.org/Presentations/Height_Management.pdf). However, before starting any intervention, it is imperative to have a quantitative determination to determine the degree of obesity or wasting in a child or an adult using growth-and-obesity roadmap, generated by multiple growth-and-obesity profiles <http://www.ngds-ku.org/Presentations/Roadmap.pdf>

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**Web address of this document:** [http://www.ngds-ku.org/Presentations/Optimal\\_Weight.pdf](http://www.ngds-ku.org/Presentations/Optimal_Weight.pdf)

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