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*The Modified Body Mass Index: An Attempt to More Accurately Represent Health Risk with  
Regard to Weight*

The body mass index (BMI) compares an individual's weight to height, but it can overestimate or underestimate a person's health risk with regard to weight. Percent body fat is a more reliable method of assessing weight related risk, but it is more difficult to obtain and requires special equipment. Waist circumference is another physical measurement that can be used to assess health risk. The purpose of this project was to develop a possible replacement for the BMI that would have improved accuracy. Variations of a modified BMI (mBMI) formula were created incorporating a BMI factor (adjusted by wrist circumference) and a waist circumference factor, with varying proportions of contribution to the final value (100% BMI factor to 0% waist circumference factor, 80% to 20%, 60% to 40%, etc.). Data were collected from subjects including height, weight, waist circumference, wrist circumference, % body fat by impedance, and % body fat by fat caliper. Values for the different mBMI formulae were compared with the average values of the two % body fat measurements for each subject. Correlation coefficients were calculated for each of the formulae to determine the one most closely paralleling percent body fat, and this determined the final mBMI formula. The correlation coefficient for the mBMI ( $r = 0.768$ ) is higher than the correlation coefficient for the normal BMI ( $r = 0.633$ ) indicating a closer relationship to % body fat. This new mBMI formula improves upon the current BMI formula and could replace it as an easily obtainable measurement of an individual's health status in terms of weight.