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Take the stigma out of obesity

Joseph Indelicato[1]

Social exclusion, stigma, guilt, and shame have been the cornerstone problems of obesity[1]. This guilt and shame caused by societal stigma leads to binge eating, depression, and social exclusion[2]. These social sequelae have been fostered by a mistaken general assumption that one size fits all when it comes to weight control, which has led to prejudice, hostility and inappropriate treatment[3].

Given the very wide metabolic variation that does occur between individuals, any approach obviously must be tailored to each individual's unique body metabolism. Most weight management approaches consider calories in and calories out since a chronic imbalance in this area leads to weight gain, but individuals are treated by public health professionals as though these differences do not exist. While Resting Metabolic Rate (RMR) comprises 50%-80% of energy expenditure in adults[4], this key measure of metabolism is seldom used in treatment decisions, nor in advising patients of the possible origins of their weight problems. For the past 10 years, technology has advanced to the point that indirect calorimetry of RMR can be measured cheaply and readily[5].

Metabolic Factor (MF) measure was first introduced by Davis *et al*.[6] This new metric is simply calculated by dividing RMR by current weight. For example, an individual with an RMR of 2,000 and a weight of 200 will have a MF of 10. Davis *et al*[6] found differences in MF based on people's weight. Obese people had an average MF (with standard deviation in parenthesis) of 8.3 (1.5) while the MF of overweight individuals was 10.6 (1.5) and of normal weight people was 12.8 (1.9). These results point to the possibility that MF may have significant influence on an individual's weight, especially considering the strong negative correlation between MF and weight (r = -0.63). People with a lower Body Mass Index (BMI), between 30 and 40, had slightly higher Metabolic Factors of 8.3. Another study used information taken from a German database of 2,105 people[6]. Their overall sample had a Metabolic Factor of 9.3. Individuals with a BMI less than 18 had Metabolic Factors of 11.2 while it was 10.4 for BMI 18-25, 9.1 for BMI 25-30, and 8.1 when BMI was over 30. These results point to Metabolic Factor as a possible strong contributor to a person's weight. According to Foster *et al*[7] of 80 obese women with an average BMI of 38.9, the Metabolic Factor for this group was 7.6. Studies continue to show that obese people have much slower metabolisms, typically fifty percent slower

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than normal weight people, but measurement has been difficult[8-10].

A study by Davis and Indelicato[11] demonstrated that even with massive post-surgical weight loss, obese people did not have significant changes in Metabolic Factor. The initial weight for the 18 participants was 326.3 pounds (91.3). Post-surgically the average weight dropped to 229.3 pounds (48.0) ($p < 0.01$). They still have very slow metabolisms as measured by Metabolic Factor at 8.5, compared to normal weight subjects, as measured in an earlier study, of 12.3. These results indicate that subjects who lost on average of 99 pounds, still have metabolisms which were only 69 percent of normal, meaning that after all the weight loss and surgery, they would have to continue eating only 69 percent of normal to maintain that weight.

The finding of the strikingly high negative correlation between Metabolic Factor and weight ($r = -0.63$, $p < 0.001$) demonstrates how large a role metabolism plays in weight, possibly accounting for up to 40% of the variance in weight. The only rational conclusion is that obesity is largely a function of metabolism and that, in large part, the true disease of obesity is the stigma that society places on those who are overweight. Public health professionals must seek to reduce this stigma and help reduce the consequences, which follow any stigmatization, namely shame, prejudice, guilt and depression. Sometimes the true epidemic may not be of obesity but of the attitudes toward those who are overweight. Cure those attitudes, seek ways to better understand metabolism and what causes variances in it, and true progress will be made, but treat the stigma first.

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