

A lighthouse costs less than shipwrecks.



Prevention costs less than disease.

The National Insulin Resistance Council

A not-for-profit disease prevention organization

Obesity

According to the CDC, the latest data from the National Center for Health Statistics report that 30 percent of US adults age 20 and up - over 60 million people - are clinically obese. Another 33 percent are merely overweight. Among children and teens aged 6–19 years, 16 percent - more than 9 million young people - are considered overweight, more than triple 1980's numbers. One of the CDC's national health objectives for the year 2010 is to reduce the prevalence of obesity among adults to less than 15%. Current data indicate that the situation is worsening rather than improving. The health care world is properly alarmed by the magnitude of these numbers, and even more by their growth rate. The National Institutes of Health declared obesity an *epidemic* and launched a task force to research and confront it.

BMI, body-mass-index, is a calculation that compares weight to height, producing a number that has proven to be an excellent indicator of body fat for both men and women. BMI tends to over estimate body fat for athletes and extremely muscular people, and under estimate it for elderly individuals and others who have significant loss of muscle mass. There are just a few key BMI numbers to remember. A person with a BMI of 18.5-24.9 is considered having a normal body fat proportion for their height. One with a BMI of 25-29.9 is deemed overweight. A person with a BMI of 30 or more is deemed obese. The advantage of BMI is the ease and low cost of obtaining it. One needs only to be weighed and then read the results from a BMI table or use a BMI calculator, both available at www.nih.gov. [Learn more about **Fitness** [here](#)].

Keeping track is one thing, fixing the problem is quite another. Questions arise regarding whether improvement efforts that focus merely on the symptom of excess weight are good enough. Weight is an easy indicator but probably more useful in the context of the problems of which it is a part. Programmatic diets alone rarely provide long-term improvement, for example. Exercise programs in isolation, if divorced from nutrition planning, have noted dropout problems. We use the term lifestyle here to consider weight, exercise, and eating together. Any lifestyle program that deals with weight, fitness and nutrition would seem to be more likely to work for a motivated person than a coerced one. A constructive model would include weight management as part of a specific health improvement program, but one that the individual comprehends and embraces with conviction. NIRC suggests that this is likely to come from an understanding that, for many of the overweight and obese individuals in society, *insulin resistance* is a fact of life. At a minimum, weight management blunts its effects. Good enough weight management may even deactivate it. Either way, weight management as part of a comprehensive lifestyle program, will help defer or completely avoid devastating diseases over time.

Excess insulin caused by *insulin resistance* signals the body to make and store body fat. When insulin is present in the blood, the liver grabs and converts glucose into glycogen which it stores as the body's nearly instant energy supply. Even when the liver has stored all the glycogen it can physically hold - about a pound - as long as insulin is in the blood, it continues to convert

glucose to glycogen, but releases it into the bloodstream. Adipose cells absorb the glycogen and store it as long-term energy reserves. Adipose tissue stuffed with glycogen is what we know as body fat. Human metabolism is based on our ancestral biology of the hunter/gatherer's uncertainty of when the next meal will occur, rather than on a schedule of two or three squares a day, an extremely modern phenomenon in evolutionary terms. We have a strong biological bias to storing energy for the uncertain future.

A prominent symptom of type 2 diabetes is pronounced fatigue. Why would someone who has excess glucose (the clinical definition of diabetes) not have enough energy? That same individual has excess insulin, too, because of ***insulin resistance***. The excess insulin is, in effect, signaling the liver to make glycogen and signaling adipose tissue to store glycogen as more body fat. The body is in fat-making mode. The adipose tissue won't release glycogen, nor will the liver convert glycogen to glucose while insulin is present. This not only explains the fatigue problem, but another well-known phenomenon that brings us back to obesity. People with ***insulin resistance*** gain pounds with increasing ease, and lose it only with great difficulty.

There seems to be a very substantial overlap of obese people with those who have ***insulin resistance***, and their weight management issues are tied to insulin levels as much as to diet and exercise, then it stands to reason that taking account of all three would be a more successful strategy than taking account of only two, and ignoring excess insulin.

Early identification of ***insulin resistance*** and ***active prevention*** are valuable concepts in two ways. For those with ***insulin resistance*** and established excess weight, weight management efforts could be more likely to succeed when an individual has a clear basis for informed and motivated self-interest. For those ***insulin resistant*** individuals who have not developed a weight problem, knowledge becomes the basis of a lifetime of avoiding weight problems in the first place. All should know that they are being chased, so to speak, by diabetes and heart disease. Becoming and staying lean lets them avoid getting caught.

The goal of the National Insulin Resistance Council (NIRC) is to ***prevent*** millions of non-infectious disease cases tied to ***insulin resistance*** including diabetes, heart failure, stroke and recently-linked Alzheimer's. It sponsors, operates, and collaborates with others on programs that lead to ***early identification*** of affected individuals and fosters targeted ***active prevention*** programs.