Dear Alice,

My husband and I are having a debate over the value of liposuction as a means to permanent fat removal. He has read that we are born with a specific number of fat cells and therefore believes liposuction has the ability to reduce this number, resulting in permanent fat loss in the areas that are surgically treated. I differ in the belief that fat loss and its permanency depend on maintaining and correcting diet that is related to metabolism. I also maintain that there is no such thing as permanent fat loss from liposuction. Have you an answer to our debate?

Answer

Dear Reader,

You and your husband are probably not the only ones having this debate. Various health professionals have also been in disagreement regarding the long-term outcomes of liposuction. The problem is that much of our evidence about the long-term outcomes of liposuction is based on anecdotes, which indicate that some people maintain the weight/fat loss, others re-gain the weight, and some people even gain more weight/fat than their pre-liposuction amounts. This debate will likely continue for some time.

Truth be told, multiple factors including gender, age, lifestyle, and genetic factors all impact weight. A one-time removal of 4-6 pounds of fat (even in very obese individuals no more than 20 pounds of fat is typically removed in one surgical procedure) must be accompanied by dietary changes and physical activity to maintain the weight loss. In the absence of these lifestyle changes, the individual can regain weight (and fat) that was lost during the liposuction procedure. While liposuction does remove entire fat cells, the fat cells remaining in the body can increase in size and can signal that more fat cells be created if there is an excess of fat in the body that must be stored. In other words, if the individual eats more calories than the body can store with its current supply of fat cells, the body will create more storage space to accommodate the excess fat.

Regarding your husband's argument, people are not born with all of the fat cells they will ever develop. Instead, cell number continues to increase throughout adolescence. After this point fat cell number may become fixed unless the individual gains a significant amount of weight. In this case, existing fat cells will be filled to their limit of about 1.0 microgram of fat per cell (normal is approximately 0.5 - 0.6 of a microgram), and more fat cells may be produced if needed. Pregnancy also seems to permit formation of new fat cells.
Cosmetic motivations aside, some people may opt for surgeries like liposuction to reverse medical complications from extreme obesity. However, research suggests that losing weight by achieving a negative energy balance (by reducing food intake and increasing energy expended through exercise) is important for achieving the metabolic benefits that go along with weight loss (like decreased risk for chronic diseases, increased endurance, and so on) (1). Also, liposuction procedures tend to target the abdominal area and sometimes the back of the upper arms and legs, but fat can be deposited in muscle, on organs, and in several other places throughout the body. These other locations where fat may be stored would be reduced in size when the person loses weight the traditional way. Although some good research has been done, more research with large sample sizes studying the long-term effects of liposuction is needed.

Alice!
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