

James L. Holly, M.D.

Getting Rid of Fat – Why is it so Hard?

By: James L. Holly, MD

In the August 19, 2004, Your Life Your Health, we learned that fat cells are active little hormone factories which are producing many substances, almost all of which are harmful to your heart, arteries and health. We introduce new concepts such as “ectopic fat” – fat which is found where it doesn’t belong – and “dysfunctional fat” – fat which does not respond normally to insulin.

What can you do about this “ectopic” and “dysfunctional” fat? The fundamental way of dealing with “dangerous fat” – fat which is harming your health and causing disease -- is to get rid of it. And the only way to “get rid of it” is to lose it. Now, that’s not as easy as trying to hide from it so that it can’t find you, or trying to run away from it, so it also gets “lost” and again can’t find you. Also, the “ostrich approach” doesn’t work, i.e., if I just close my eyes and pretend that it isn’t there, it will just go away.

Burning Fat

The only way to get rid of fat is to burn it up with work. How do you do that? Well, think through this with me for a moment. Why is it so hard for a fifty-year-old woman to lose that fat? I can’t tell you how often someone tells me, “I don’t eat that much and I still can’t lose weight.” After taking a careful dietary history, I have to agree with them, they don’t eat that much, but they are still not losing weight. Why? Why is it so hard to burn up fat when you are fifty and significantly overweight?

The answer requires a few facts:

- Fat requires only three calories a day to sustain itself (some would say two calories a day per pound)
- Muscle requires thirty-five calories (some would say fifty) a day

If a person weighs 200 pounds and if they were 100% muscle – which no one is – they would require 7,000 calories a day to maintain their body weight. This means that their basal metabolism rate (BMR) is 7,000 calories. If that same person were 100% fat – which no one is – they would require only 600 calories a day to maintain their body weight. Their BMR is 300 calories a day. The answer to our question is already becoming obvious.

But people are not made up of just muscle or of just fat; they are made up of bone, muscle, fat, tendons, ligaments, water and other substances. If our 200 pound subject has a body fat percentage of 50, i.e., 50% of the body weight is fat, 100 pounds of his/her body weight is fat. Those one hundred pounds of fat require only 300 calories a day to maintain them. This means that the caloric requirement of this person would be like that of a 100 pound person plus 300 calories. This is not precisely correct because the work of carrying the additional 100 pounds of fat around adds a few more calories to the muscle's needs each day, but the point is still the same.

The Higher Your Percentage of Body Fat,, The Fewer Calories You Need To Maintain Your Weight

If this person is 60 years of age and if this person lives a sedentary life style – is a classic couch potato not getting any exercise in daily living or in working out – then he/she would only require 1627 calories to maintain his/her current weight (BMR). That's really not much food, particularly for a 200 pound person. In order to lose a pound of weight every 10 days, or to lose 3 pounds a month, our 200 pound person with a body-fat percent of 50 would have to reduce his/her daily caloric intake to 1200 calories. Many people, who have gained weight over many years are addicted to carbohydrates – bread, pasta, pizza, potatoes, etc – and would find that level of caloric intake uncomfortable.

And, because people who go on a diet often decrease their protein intake below their minimum daily requirement, dieters often lose some muscle with the fat they lose, further compounding their problem. **So, yes, it is possible not to eat very much and to not lose weight and/or actually gain weight.**

Age and BMR

But the problem with losing weight is not only a function of your percent body fat due to overeating. As we get older, our daily calorie needs change and unfortunately they always change by going down, unless we are actively doing something to increase our calorie expenditure each day.

The age-related changing need for calories to maintain body weight can be seen from the following daily calorie requirements for a person who is five-foot-eleven-inches tall and

who weighs 160 pounds. The calorie requirements are given for a male and female, at ages 20, 40, and 60. The BMR is:

Age	Male	Female
20	1952	1663
40	1816	1569
60	1658	1475

If you are a 20-year-old male, who is 71-inches tall, who weighs 160 pounds, you need 1952 calories each day to carry on normal bodily functions. Any extra activity – exercise, strenuous work etc – adds to that need, but just to “stay alive” you need 1952 calories.

By the time you are 60 years old, your BMR has dropped by almost 300 calories a day. If you continue to eat the same amount of food at 60 as you ate at 20, without changing your activity level, you will gain one pound every 10-12 days, which means that you will gain 30 or more pounds a year.

Look at the difference if you are female. Assume that you are a 71-inch-tall female and at age 20 you weighed 160 pounds, your basal metabolic rate (BMR) is only 1663, almost 300 calories a day less than a male of equal height and weight. You will notice that the difference in BMR between a 20-year-old female and a 60-year-old female is only 192 rather than the 292 difference between a 20-year-old and a 60-year-old male. The BMR for a female is less than a male, but it drops less over time as well. The difference in the same-age BMR for a male and a female of the same height and weight partly has to do with the difference in body composition, i.e., females typically have a higher body fat percent than males.

BMR Decreases Due To Loss of Muscle Mass

After the age of 25, adults who are not on a safe, effective strength-training and aerobic exercise program will experience an annual half-pound loss of muscle and a half-percent reduction in BMR. This gradual decrease in muscle and BMR is related to the increase in body fat that most people experience as they get older. With a decrease in muscle, less energy is used for daily metabolic functions, so calories previously required to perform the activities of daily living now end up stored as fat.

The aging process results in a number of changes which will increase fat stores, often by directly affecting the BMR. Other aging phenomenon indirectly affect the BMR by affecting the muscle mass. Several of these are:

1. Decreased activity will affect both exercise-induced caloric consumption and the muscle mass, which will decrease the BMR. Smaller muscles mean fewer

- calories needed. When caloric intake is not decreased this results in increased fat stores and in many of the illnesses and diseases associated with obesity.
2. In males, decreasing testosterone levels also affects lean body mass by a decrease in muscle mass which also decreases the BMR.
 3. In both males and females the decrease in Growth Hormone with aging results in decrease lean body mass due to decrease in muscle mass which decreases the BMR.

These hormonal changes are real, common and widespread. Other hormonal changes which are real and common but not necessarily widespread are those of the thyroid. Many “weight loss” clinics gain clients by giving everyone thyroid pills whether they need them or not. This will artificially increase the BMR but at the cost of your health. Super-physiological doses (doses which raise blood levels above normal values) of any hormone are dangerous and ill-advised. Yet, there is a very small group of people who have abnormally low BMRs due to a condition called “hypothyroidism.”

In reality, in order to see your BMR go down and your weight go up, you don’t have to do anything except get older.

What Can You Do?

The first thing you can do is recognize that if you are obese, calorie reduction alone will rarely result in your losing weight. You have to increase your calorie expenditure; you have to exercise. For instance if you take our 60 year old male, who weighs 200 pounds, these are the differences in his BMR;

Sedentary life style (couch potato) – BMR 1884
Very Hard Daily Exercise – BMR 2983

Very hard exercise or activity can raise your BMR by 50%. Moderate exercise 3-5 days a week can raise your BMR to 2434. Your SETMA healthcare provider can give you a personalized exercise prescription and tell you precisely what the differences will be in your BMR each time you visit the clinic.

If with moderate exercise, your BMR goes up by 550 calories and if you do not eat any more, or any less, you will lose 48 pounds in one year!

Exercise and Metabolism

The affect of exercise on the human body and its metabolism is remarkable. This is clearly seen in the diabetic patient. If a patient with diabetes exercises, the amount of insulin required to control their diabetes goes down dramatically. Typically, the insulin dose should be decreased by:

- 30 percent for postprandial (after meal) exercise of less than one hour(
- 40 percent for exercise of one to two hours

- 50 percent for exercise of more than two hours.

Increased insulin sensitivity may persist for 12 to 48 hours after exercise and can cause clinical hypoglycemia. The insulin dose may decrease further as the diabetic patient:

- Trains
- improves physical fitness
- reduces body fat
- decreases insulin resistance

These same improvements are experienced by non-diabetics. After exercising, the BMR goes up and stays up for a period of time, the length of which is related to the duration and difficulty of the exercise session. The muscles utilize more energy to perform the exercise and much of that energy will come from the “burning up” of fat.

Done long enough, a combination of decreased daily calorie intake and increased calorie utilization through exercise will result in the loss of “ectopic” and “dysfunctional” fat, which diminishes your danger of stroke, heart attack, blood clots, diabetes, hypertension and many other conditions.

Take Action

To discover how your increased body fat is hurting your health and to have a planned diet designed to deal with that health hazard, make an appointment with Dr. Keith Stout in SETMA’s Metabolic Syndrome Clinic.

You are the only one who can make the decision to improve your health, after all it is your life and it is your health.