

Why is Oprah Still Obese?

Leptin Part 3

Readers Summary

1. Why can't you lose weight when you change lifestyle?
2. What is an uncoupling protein (UCP)?
3. The difference between an endurance athlete and the Oprah?
4. Why is Oprah still fat?
5. Dr. Kruse's screening question for assessing Leptin status.

Now, we know definitely that Leptin controls all energy production by regulating all the hormones in the body. But, do you wonder what happens when that regulation goes awry in the muscles? Well, here is some information about one part of how Leptin works to keep us fit when your body is sensitive to it.

When Leptin was discovered in 1994, no one really had a clue as to its many functions. One function that was particularly murky was how the brain controlled peripheral energy utilization and optimized it. It is awfully hard to realize that the hypothalamus (size of a pea) can control the need for fuel of 20 trillion cells in the human body. Well in the last few years, scientists found out about uncoupling proteins (UCP). So far five have been discovered in mammals. The one we will discuss today is UCP3.

This protein, UCP3, allows Leptin to work inside of peripheral cells like the muscle cell. For UCP3 to work optimally, it requires optimal functioning of leptin and thyroid hormone simultaneously. In muscle cells, UCP3 is the dominant UCP in humans. So it is vital to maximizing efficiency in exercise and energy use. In fact, in trained athletes, UCP3 levels will

go down in all muscle fibers types because they will become more efficient if the athlete is burning long chain fatty acids. Most athletes, however, do not maximize this effect of proton leak because they use too many carbs to fuel themselves. When UCP3 is maximized LCFA are exported out of the mitochondria and UCP1 burn food electrons as free heat. This changes the cell water in cells. MCT has no effect on UCP3. What UCP3 allows the muscle to do, is to shift out of regular oxidative energy production done at the mitochondria and making energy, in the form of ATP, and into making pure heat without generating ATP. This biochemical action decreases ROS (levee 3) at the mitochondrial level, decreasing cellular stress. And therefore the energy is dissipated mostly as heat. Another protein, UCP1, is dedicated to doing this same action when it is activated 100{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} of the time.

UCP3 functions in this manner as an alternative pathway to deal with excess energy (electrons and protons). This is the reason why you hear people like Gary Taubes and myself, tell people that calories do not matter when you are Leptin sensitive. However, they matter big time to folks who are Leptin resistant, because they cannot utilize these pathways at all. This is the primary pathway in which fat burning occurs peripherally in the human body. If it is not working well, or at all, the excess calories are sent packing to visceral stores or to organ depots that generate their own set of problems when it occurs chronically.

Let us think about what this means for the muscle cell. If you are Anthony Colpo or Robb Wolf, you can burn whatever fuel you receive, because your UCP3 is optimal. The fuel source is usually immaterial when in season, even if the source is high in carbs or high in fats. But let's say you're Oprah, and you cannot do this; then the muscle cell has to make a choice. Since her UCP3 is not optimal when fuel is delivered to the

muscle it cannot be used quickly and builds up. The cell tries to activate UCP3 to dissipate the excess but it requires Leptin sensitivity and good T3 and T4 function. We know by looking at Oprah that she is not optimal (the mirror test). With exercise Oprah tires quickly and her muscles fatigue faster than someone like Robb's does. WHY? She cannot utilize the fuel. She spends a lot of time around the blue light in her TV gig. So the excess is sent off to depots, while her muscles are still energy starved and send a signal via the gut to eat more to give the cells fuel. That is precisely what she does over and over again. The problem is that the muscles never get the correct amount of fuel in them to meet demands. (Levee 13)

Chronically, this excess energy is stored in her fat and no matter how much she works out she finds it difficult to lose the weight that she wants. Sound familiar yet? The cure for her is to stop listening to Dr. Oz's crazy diet recommendations, and instead focus on regaining her Leptin sensitivity to make the muscles burn more efficiently. When her muscles see excess calories consistently, it clogs them with ALE's from fat and AGE's from sugars. These are two more levees in The Quilt. Think about what maple syrup looks like if you left it on your countertop for weeks! It becomes concrete-like. This is precisely what happens to muscles in type two diabetic chronically because UCP3 is shot. Moreover, the longer it goes on the worse it gets. That condition then begins to affect the nerves that go to the muscles that innervate them and cause pain and sensory dysfunction. This is how fibromyalgia and peripheral neuropathy develops. It begins with a defect in energy metabolism at the muscle level due to peripheral Leptin resistance.

So when you think about exercise and performance (Cross fit/Wolf) folks one must understand the **context** your muscles are in when you begin to optimize yourself. This contextual problem is why we have so many competing ideas of how we

should advocate exercise for all people. Exercise for Robb et al does not equate with Oprah because their biochemistries are not similar.

Here is the best part: Oprah can become equal to them if she has somebody explain this to her. Dr. Oz certainly has not for over a decade! Her goal is to focus on becoming Leptin sensitive by being required to eat 50 grams of protein at breakfast everyday within 30 minutes of rising, eliminating all snacking especially past 7:30 PM, eating three meals a day and limiting her carb intake below 50 grams per day for about 6 to 8 weeks. In my practice, over the last 5 years, that is about the bell curve I have seen that most patients require regaining their Leptin signaling back. I check Leptin sensitivity by asking a few questions, or by ordering a reverse T3 level. Small amounts of carbohydrates will not knock these processes down. There is a range between 50-150 grams a day based upon the season you find yourself in.

Here are my questions for assessing a patient's Leptin status:

- Do you notice you sweat more and have less muscle fatigue when you exercise now?
- Have your carb cravings gone away?
- Is your hunger under control now?
- And are you waking up more refreshed?

When these questions are all yes, then I push the button and tell them to start exercising more with intensity and duration first using weights but never using aerobics. The reason for weightlifting first, is that it generates less ROS in the muscle at the mitochondrial level, and more importantly that it stimulates the release of growth hormone to fire up muscle activity via the neuroendocrine system. It also more quickly reestablishes the Leptin sensitivity of the furnaces that our muscles contain to burn the fat we want to get rid of. As they improve, more weight comes off and the exercise plan increases. So far this plan has not failed me because it is

not based upon my opinion. It is based upon our biochemistry that is 2 million years old! Most of my neurosurgical patients get this treatment before I will operate on them because outcomes are better when the patient is metabolically fit for recovery. If you are a patient who is Leptin resistant, and work too hard too quickly with exercise as you drop weight, the risk is generating too much ROS and depleting your stem cell supply. (Levee 17) The short term effect will be weight loss and a good result, but the long term effect may be faster aging and decrease longevity!

This is where I and many trainers don't see eye to eye. I don't recommend conventional wisdom. I rely on the knowledge of electrons and protons within biochemistry as the seasons change. Follow me on Twitter @DrJackKruse.

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