

- ✓ Have you been feeling sluggish, or run down?
- ✓ Is your cholesterol higher than desired?
- ✓ Have your fasting blood sugars been too high?
- ✓ Are pounds on the scale inching upward?
- ✓ Is it getting harder and harder to shed undesired weight gain?

A developing body of research, called Nutrigenomics, is the science of how food influences genes, turning genes off and on, triggering metabolic shifts within the body, causing the body to either gain or lose weight, depending on the foods that are eaten.

In the recently published book, *Ultrametabolism*, Dr. Mark Hyman, M.D. gives an explanation of Nutrigenomics and provides a comprehensive review of seven key factors that influence obesity. Some of these factors may be familiar, while others may sound new. Knowledge is powerful. Knowing the factors that medical research now understands to be causes for obesity, gives an opportunity of how changes in choices can enable greater health and wellness.

Enhancing the metabolism of the human body can directly influence obesity. Factors can influence body metabolism to keep weight on, or to shed extra, unwanted, and unneeded pounds. It is important to know these factors, to make wise decisions. These factors include timing of meals, portion size, glycemic load, phytonutrient index, relaxation, and optimizing hormone and neurotransmitter function.

Dr. Hyman presents the 7 keys to successful weight loss:

1. Control your Appetite and Metabolism - by understanding how the brain, gut, and fat cells communicate with one another through hormones and brain messenger chemicals that drive eating behaviors. If the brain chemical neurotransmitters, particularly serotonin and dopamine, are not at appropriate levels, it will be difficult to control cravings and appetite. Low serotonin will result in uncontrolled appetite,

and low dopamine will cause cravings, particularly carbohydrate cravings. Adequate protein is needed to enable the body to produce these neurotransmitters.

2. Understand stress and how to overcome the effects of stress. Stress increases cortisol. Cortisol can stimulate insulin release and maintenance of blood sugar levels. Both of these actions can cause an increase in appetite. A quiet meditative practice, yoga, a thoughtful walk, or prayer, can each help to calm stress, and thereby decrease cortisol.

3. Control Inflammation. New information links obesity and inflammation. The classic signs of obvious inflammation are pain, swelling, redness and heat. Inflammation, however, can also occur, silently and insidiously, without symptoms. Inflammation is seen as a major cause of heart disease, dementia, diabetes, cancer, and now—inflammation is seen as a major factor causing obesity. Inflammation can cause weight gain, and weight gain can cause more inflammation. The most common suspected causes of inflammation come from our diet of sugar, animal fat, processed foods, high-glycemic foods, and lack of exercise. Eating a whole-foods anti-inflammatory diet can directly turn the tide of the hidden inflammation that stimulates weight gain. Eat whole foods, not processed foods. Eat 3 meals per day, a mid-morning and mid-afternoon snack. Finish all eating 2-3 hours before retiring for the evening, unless directed otherwise by your health care clinician, such as for a person with diabetes who is on specific medication. A blood test can be ordered by your health care provider to assess the level of body-wide inflammation, called C-reactive protein, a protein found in the blood which is a major marker for inflammation.

4. Prevent Oxidative Stress. The normal oxygen in air that we breathe, are two oxygen molecules linked together. The formation of lonely, single oxygen molecules, however, is what is known as free radicals. These free radicals that contain only one oxygen molecule, search for an electron to steal. When the free radical steals an electron from another molecule, that damaged second molecule is now missing a vital electron, and is called oxidized. When this process is repeated millions of time every day in our muscles, nerves

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and organs, oxidative stress is created. Such oxidized tissues and cells malfunction and promote weight gain.

Free radicals are produced during the process of food metabolism. Too many calories and not enough antioxidants, results in too many free radicals, and hence oxidative stress. Antioxidants reduce, or “capture” free radicals, and thus decrease damage to cells and metabolism. Antioxidants are found primarily in colorful plant foods, or in supplements, but can also be made by the body with nutrient rich foods. If diets are high calorie, and contain low nutrients, oxidative stress escalates. Simple steps to prevent oxidative stress are to avoid overeating, and avoid excess sugar and refined carbohydrates. Eat richly colorful foods, high in dietary antioxidants, to protect against impaired metabolism. Herbal remedies, such as ginger, green tea, milk thistle, rosemary and turmeric can reduce oxidation. Supplements that can reduce oxidation include Alpha-Lipoic acid, N-Acetylcysteine, and Coenzyme Q10.

5. Turn calories from consumed food into energy more efficiently, by increasing the function and number of cellular mitochondria, the powerhouse of cells. The number of mitochondria in the cell, and the efficiency of the mitochondria to transform food and oxygen into energy, determine the metabolic rate. The best way to increase the number and function of mitochondria, and therefore your metabolic rate, is by increasing muscle mass with exercise. This increased metabolic rate is important both for calories burned while during exercise as well as when not exercising, as muscle burns seventy times as many calories as fat cells. Simply by increasing the number and function of the mitochondria, there is marked increased ability to burn calories even when at rest. There are specific supplements that can give a metabolic tune-up to boost mitochondrial function. Acetyl-L-Carnitine transports fat into the mitochondria. N-Acetylcysteine helps to restore glutathione, the most powerful antioxidant in the body. Alpha-Lipoic Acid helps to protect the mitochondria from oxidation. Coenzyme Q10 helps increase mitochondrial energy production.

6. Make sure your thyroid is working correctly—and optimally. The main function of thyroid hormone is to stimulate metabolism, and affects nearly every function and process in the body. If the thyroid gland is not producing sufficient thyroid hormone, symptoms such as weight gain and fatigue are the result. Food allergies and environmental toxins can slow down your thyroid. Fluoride has been linked to thyroid problems. Have your thyroid tested by your medical provider. Use supplements that support your thyroid, such as a multivitamin/mineral supplement that contain the selenium, iodine, zinc, Vitamin A and D, and the Omega-3 essential fatty acids that the thyroid gland needs for normal function. You may need a prescription thyroid hormone replacement from a health care provider.

7. Detoxify your liver so that the liver will properly metabolize sugars and fats, and eliminate toxins. Both environmental external toxins taken into the body, and toxins internal to the body from metabolic processes such as protein digestion, affect the thyroid, liver and mitochondria. These toxins must be processed by the liver, and eliminated, or these toxins affect the ability to lose weight. There are simple ways to improve the effectiveness of the body's detoxification: minimize exposure to toxins, eat organic foods and drink filtered water. High levels of fiber in the diet promote the excretion of toxins through regular bowel elimination. Toxins are also released through sweating, during both exercise or in saunas. Specific foods that help detoxification are the cruciferous vegetables such as broccoli, green tea, watercress, cilantro, artichokes, garlic, pomegranate, and cocoa. Milk thistle is the best herbal supplement to help the liver with detoxification.

Powerful forces make weight loss difficult. Following the suggestions of these seven keys can help you work with your body instead of against it, igniting natural fat-burning processes, reversing the processes of many chronic diseases. As Dr. Hyman summarizes, “Food contains information and instructions for our bodies—eat the right foods and send instructions of weight loss and health; eat the wrong foods and send messages of weight gain and disease.”

Before starting any nutritional supplement, herb or weight loss program, please consult your health care provider.

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