



# A Calorie Isn't a Calorie

By Stephanie Colo Manning

(See Stephanie's recipe for Gluten-Free Biscuits in the recipe section of this issue).

Conventional wisdom tells us that weight loss comes with fewer calories and more exercise. Some say it has more to do with hormones. Others point to genes, stress, and toxins. This article examines how the quality of our food is a powerful common denominator to all these factors and more.

## Calories In, Calories Out

We look to the standards of Body Mass Index (BMI) to determine healthy weight, and Total Energy Expenditure (TEE) for calories to maintain our weight.

Since there are 3,500 calories in a pound of stored body fat, then a 500-calorie/day deficit through diet and exercise should theoretically lose one pound per week.

One-half to two pounds per week is considered a healthy rate of weight loss. Losing more rapidly could result in muscle loss, and according to the CDC, people who lose weight at one to two pounds per week are more successful at keeping it off.

However, if eating less and exercising more aren't helping you lose weight, then indeed, you're living proof that it's not as simple as "Calories-in-Calories-out." Food quality (vs. quantity) is vital in all of the following factors that ultimately affect weight loss.

## Muscle

Muscle at rest burns six calories per pound per day, whereas fat burns only two. Obesity reduces burn rate by damaging existing muscle tissue and altering protein usage. Therefore, optimizing muscle mass by weight lifting and eating sufficient protein are extremely important to boosting metabolism and successful weight loss.

## Genes?

Two examples of how genes affect weight are:

- Women with type 2 diabetes have offspring who are at greater risk of childhood obesity and insulin resistance.
- Some cows are bred for more fat in their muscle ("marbling") while others are bred for milk production.

However, we can no longer think of our genes as an ON-OFF switch, or a ticking time

bomb that we're stuck with. The *Human Genome Project*, completed in 2003, proved this. The World Health Organization, in fact, says that only two percent of all diseases are due to gene defects at birth.

These new realizations have fueled much growth in the incredible scientific field of *epigenetics*. While we've questioned *nature vs. nurture* for decades, we're now learning exactly how *environmental factors alter gene expression*. In other words, how diet, activity, sleep, stress, toxins, etc. profoundly affect our genes.

Dr. Liz Lipski, Academic Director of Nutrition and Integrative Health Programs at Maryland University of Integrative Health, thinks of gene expression as a "dimmer switch," not an ON-OFF switch. For example, BPA in plastics and cans can cause the obesity gene to be expressed, while breastfeeding protects infants from obesity later in life. The CDC agrees that most obesity seems to be the result of complex interactions among genes and environment.

Helayne Waldman, author of *The Whole-Food Guide for Breast Cancer Survivors*, tells about supporting tumor-suppressing genes and inhibiting cancer-recurring genes through diet. She cites research showing that selenium reduces the BRCA1 gene to normal levels. She also explains that bitter melon down-regulates markers for breast cancer activity; the Vitamin E family assists in cancer cell death and inhibits tumor blood vessel growth; and magnesium, zinc, iodine, and vitamins D and K2 are essential in preventing and fighting cancer. She advocates a real, whole food diet to reduce blood sugar, decrease inflammation, and boost nutrition, for incredibly powerful cancer intervention.

Sayer Ji, founder of GreenMedInfo, explains that food is information for our genes, and tinkering with food is tinkering with our genetics. In explaining some dangers of GMOs, for example, he cites research showing that genetic material from plant-based food actually inserts itself into the genetics of our own bodies. So food quality plays a large role in our genetic health.

## Basic Hormone Imbalance

Hormones, particularly insulin, significantly impact our weight. Insulin is mostly influenced by dietary choices. Cheap fillers that are sugary, floury, and starchy (breads, crackers, cereal, pastries, french fries) and even "healthy" processed foods (many "100-Calorie

snack packs," cereal bars, gluten-free items, Vitamin Water<sup>®</sup>) initiate the problem by spiking our blood sugar.

In response to increased blood sugar, insulin levels must spike in order to move the toxic load out of our blood stream. Surprisingly, artificial sweeteners spike insulin, too.

Afterwards, when our blood sugar plummets, we urgently crave these same foods again. Naturally, we gain weight as this vicious cycle repeats.

These frequent blood sugar and insulin swings wreak havoc on our body. Over time, our cells become insulin resistant (leading to diabetes); our pancreas, liver, and adrenal glands get stressed; our fat cells release inflammatory molecules throughout our body; and we develop fatty liver disease (which affects up to 25 percent of the U.S. population.)

Meanwhile, high insulin signals our fat cells to store fat, and "trains" them to not release it. Insulin resistance increases belly fat and disrupts appetite hormones. Blood sugar regulation through a quality diet, therefore, is paramount to weight loss.

## Stress and More Hormone Disruption

Stress impacts our physiology in fascinating ways. We can thank our innate "fight or flight" response whenever we feel threatened (such as when being chased by a dinosaur!) Regardless of whether the stress is from dinosaurs, road rage, poor grades, inflammatory foods, illness, or trauma, our physical response is the same:

- Stress hormones (adrenaline and cortisol) increase to heighten our alertness.
- Heart rate and blood pressure increase to deliver extra nutrients to muscles and brain.
- Blood sugar and lipids increase to provide more energy.
- Breathing accelerates to provide more oxygen.
- Blood flow is diverted from the skin to large muscles, to run faster.
- To compensate for these immediate physiological demands, our body shuts down "non-essential" functions, including tissue repair, digestion, thyroid function, reproduction, growth, and immune response.

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When ongoing stress chronically raises our cortisol (stress hormone) our other hormones get disrupted. This can lead to reduced thyroid hormone, increased insulin, insulin resistance, leptin resistance (blocking the hormone that tells us we're full) and increased ghrelin (hunger hormone.) No wonder stress leads to weight gain.

While wolfing down a box of cookies after a rough day may seem stress relieving, it perpetuates hormonal disruptions and stresses us with the burden of clearing inflammatory ingredients.

## Metabolic Syndrome

As insulin resistance builds, these sugary, floury, starchy foods go on to promote *metabolic syndrome*: large waistline, high blood sugar, high blood pressure, high triglycerides, and low HDL. This cluster is a set of risk factors for heart disease, diabetes, and stroke. According to the National Heart, Lung, and Blood Institute, metabolic syndrome may overtake smoking as the leading risk factor for heart disease, and neurobiologists tell us these same factors increase risk for Alzheimer's. Breast cancer and colon cancer are associated with metabolic syndrome, too.

While wrecking our body, metabolic syndrome also contributes to weight-gain and the physiological changes that tell our body to hang onto fat. As Gary Taubes, author of *Why We Get Fat*, puts it, "What makes us fat – the quality and quantity of carbohydrates we consume – also makes us sick."

Taubes says that stabilizing blood sugar is the key to combating metabolic syndrome. Dr. Michael T. Murray, Naturopathic Doctor and author, says it takes only 5 to 10 percent weight loss to meaningfully improve cholesterol, blood pressure, blood sugar, and other factors. A quality diet is the key to correcting metabolic disturbances.

## Gut Flora

We have a magnificent ecosystem living inside us: *the gut flora*. These 100 trillion bacteria, yeast, fungi, and viruses residing mostly in our large intestine are not "germs" – they're mostly good guys, serving highly important functions; we cannot live without them.

There are bad guys, too, however, and these "pests" feast and thrive on low quality foods (sugary, floury, starchy foods; artificial sweeteners; and additives.) Unbalanced gut bacteria is known to be a measurable, quantifiable risk factor for obesity.

We must nurture our good bacteria by feeding them real, whole, high quality food – "feed your pets, not your pests." See *Nourishing the Roots of Our Tree* at <http://www.colokitchen.com/nourishing-the-roots-3-2015> for more on nurturing our gut flora.

## Inflammation & Toxins

Inflammatory foods include sugar, gluten, soy, corn, dairy, canola and vegetable oils, oils used in processed foods, common ingredients like carrageenan, antibiotics in meats, animals fed corn and soy, GMOs, and more. Inflammatory foods like these decrease metabolism and increase insulin resistance, which all feeds into weight gain.

These foods often contain artificial sweeteners, allergens, preservatives, pesticides, chemicals, and heavy metals, too; toxins don't add Calories, but promote weight gain by messing with our body chemistry and competing for our nutrients.

Certain foods, by contrast, such as *curcumin* in the spice *turmeric*, are well known to be anti-inflammatory.

See *Diet Does Matter* at <http://www.colokitchen.com/diet-does-matter-how-9-2014> to see how life-changing it can be when we remove inflammatory foods from our diet.

## Nutrient Deficiency

Overconsumption of nutrient-sparse processed foods leaves no room for real nutrients in our diet. So our overweight yet nutrient-deficient body cries out for more food. These foods are rapidly digested, so we feel full and satisfied momentarily, but hungry again soon. Eating nutritiously makes us less hungry.

Nutrient deficiency also leads to poor health, promoting weight gain through medications, immobility, fatigue, and lack of desire to exercise.

## Easy First Steps to Weight Loss

- Eat slowly and mindfully, relax, and chew well. This improves digestion and gives your hormones a chance to say, "I'm full."
- Drink more water, especially before meals. Drink half your body weight in ounces each day (180 pound person = 90 ounces/day).
- Use smaller plates. Serving size can be an illusion.
- Portion out individual servings to increase mindful eating.
- Eat every three to four hours to keep blood sugar stabilized.
- Don't starve yourself; it slows metabolism and could impact thyroid, adrenal, and sex hormones. You'll lose mostly muscle and water weight. It also leads to "yo-yo" dieting, whereby we exceed previous weight and endure biological changes that make future weight loss more difficult. It can also cause hypoglycemia.
- Stop eating three hours before bedtime. Your body can't burn these

calories and must store them as fat.

- Watch less TV. One study showed that each two-hour-per-day increment in TV watching was associated with 23% increase in obesity.
- Take probiotics, multivitamins, and fish oil to fight inflammation and dietary deficiencies.

## Next Steps to Weight Loss

- Protein with every meal/snack: fresh meats/fish (preferably organic, grass-fed, wild-caught), beans, nuts, seeds.
- Good fats: Avocados, olives, flax, nuts, seeds, omega-3 rich fish, and eggs (preferably pastured.) Coconut oil, olive oil, avocado oil, grass-fed butter (avoid canola and vegetable oils.)
- Good carbs: a variety of fresh, colorful vegetables and fruits (preferably local/organic).
- A few whole grains per day are okay (steel cut oats are good, but even whole wheat flour is so finely ground it can raise blood sugar rapidly.)
- Always eat a good breakfast (with protein, good fat, and good carbs) within one hour of waking; start the day with stable blood sugar.
- Carry healthy snacks with you always.
- Choose strawberries dipped in chocolate rather than ice cream or cookies.
- Incorporate cardio and weight training.
- Get better sleep (as blood sugar stabilizes, this will become easier.)
- Work on stress coping mechanisms ("Headspace" is an easy 10-minute meditation app for your phone.)

## Summary

Many factors affect weight in complex, inter-related ways. We can strive to tweak each factor individually, but we can't overlook one common denominator that influences all these factors simultaneously – the quality of our food.

Nutrient-dense, real, whole food delivers the calories that really count. It builds muscle, re-stabilizes blood sugar and insulin, re-balances hormones, regulates metabolism, corrects inflammation, re-balances gut flora, reduces stress, hunger, and cravings, "dims" your bad genes, and lets your good genes shine. Real food promotes real weight loss.

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