

Your Genes Remember a Sugar Hit

<http://articles.mercola.com/sites/articles/archive/2009/02/12/Your-Genes-Remember-a-Sugar-Hit.aspx>

Human genes remember a sugar hit for two weeks. What's more, prolonged poor eating habits could be capable of permanently altering your DNA.

A team studying the impact of diet on heart tissue found that cells showed the effects of a single sugar hit for 14 days. The cells switched off genetic controls designed to protect the body against diabetes and heart disease.

Regular poor eating could amplify the effect, with genetic damage lasting months or years, and potentially passing through bloodlines.

Sources:

Journal of Experimental Medicine September 2008, 29;205(10):2409-17

Tehran Times January 18, 2009

Dr. Mercola's Comments:

This finding lends even more credence to the phrase "you are what you eat." When you eat sugar, not only do your genes turn off controls designed to protect you from heart disease and diabetes, but the impact lasts for two weeks!

Even more concerning, if you eat poorly for a long time, your DNA may become permanently altered, and the effects could be passed on to your children and grandchildren.

While you may not feel the effects of a poor diet immediately, in time health problems like diabetes, heart disease and others begin to surface.

What this all points to is even more support for the emerging field of epigenetics, which is the study of how environmental factors like diet, stress and maternal nutrition can change gene function without altering the DNA sequence in any way.

In other words, you are born with a set of genes, but the expression of those genes is not set in stone. Your genes can be either activated or silenced by various factors including your diet and even your mind. It is not your genes that dictate your future health, but rather the expression of those genes that matter.

So in the case of eating sugar, it's now known that this switches off good genes that protect your body from disease. This is just one of many reasons why you may want to seriously limit or eliminate sugar from your diet.

Is There a Good Diet for Your Genes?

Your genes are merely storage facilities; they have no intelligence. As I said earlier, what's important is the expression of your genes, and your diet can certainly influence that.

Scientists are now uncovering that the reason why certain foods fight cancer or other disease is because of their impact on gene expression.

For instance, a substance called isothiocyanate in broccoli sparks hundreds of genetic changes, activating some genes that fight cancer and switching off others that fuel tumors.

Freeze-dried black raspberries also show promise. In an animal study, researchers used a carcinogen to alter the activity of 2,200 genes. However, 460 of those genes were restored to normal activity in animals that consumed freeze-dried black raspberry powder.

So it is very clear that just as a bad diet can lead to negative changes in your genes, a good diet can lead to positive ones. As Associate Professor Assam El-Osta, from the Baker IDI Heart and Diabetes Institute team who led the above study on sugar, said in the Herald Sun:

"This is not all doom and gloom . . . we think there is good epigenetic memory as well for individuals who have a good diet, not only for themselves but potentially for future generations.

If you have had five years of bad control, where good genes are switched off and bad genes switched on, changing that for a couple of months to a good diet may not have a tremendous impact.

But going back to a good diet would have some effect 10 years later. Dieting doesn't work because what you ate two months or two years ago is going to be reflected now."

The bottom line?

Eating healthy should not be just a fad or a phase in your life -- it should be an essential part of your lifestyle. And by eating well, you are helping your genes to express themselves in a positive, disease-fighting way.

For those of you who aren't "perfect" eaters, there's good news too. If you switch to a healthy diet now, it can have a positive impact on your health down the road.

You Are What Your Grandmother Ate Posted By Dr. Mercola | December 07 2006 |

<http://articles.mercola.com/sites/articles/archive/2006/12/07/you-are-what-your-grandmother-ate.aspx>

You may have read already about the research showing that the diet of a mother can have an influence on a specific gene for at least two generations.

This study on mice looks at "epigenetic" changes made to DNA, involving genes that can be silenced or activated based on exposure to chemicals.

Half of the mice in the study were fed a nutrient-enriched diet, while the control group ate a standard diet. Exposure to those high amounts of nutrients in the womb changed the coats of the mice offspring from golden to dark brown fur, while the offspring of the control group remained unchanged.

Not only that, but the children of the darker-coated mice were similarly affected; they also had dark brown fur.

Sources:

Proceedings of the National Academy of Sciences November 14, 2006; 103(46): 17308-17312

Dr. Mercola's Comments:

When I was actively seeing patients it was very clear what my primary responsibility was -- to teach my patients to eat the way their ancestors ate. If I could facilitate that change alone and have them avoid processed foods, trans fats and the ridiculous excess of omega-6 fats nearly all consume, the vast majority of them would have radically improved health.

However, this information should not cause you to worry about the diets of ancestors. First of all, it is likely that they were eating far healthier than you, but even if they weren't your body has incredible, dynamic healing capacities that have the potential to reverse much of the damage.

Mirto from Carnation, Alabama commented in Vital Votes:

"There is way too much emphasis placed on such things as blaming our condition on the fact it runs in the family (genes). What runs in the family is an eating pattern that has been passed down from generation to generation.

"I saw it in my family and was heading down a road that was the consequence of this. I drastically changed my diet, including taking supplements, and no longer have to take any drugs, including aspirins.

"When you see a number of members of a family being overweight, check what kind of food they eat, it's appalling. The cook or cooks of the house usually picked up the style from their mother, who picked it up from her mother and so on. First of all that's a problem right there. You would be much healthier eating at least 75% of your food raw, which I usually do ... Heck I even eat a little meat raw, but it's always grass fed.

"What is also important is eating for your biochemical make-up and taking the right supplements for your biochemical make-up. I follow eating by blood type, pH of the blood, watching carbs, food grouping and a whole lot more."

As far as genes go, I firmly believe that conventional wisdom imputes to them a far more exaggerated influence on your health than they really have. Fact is, genes are little more than information storage facilities that don't do much to influence your health. Rather, it's the expression of your genes, influenced by how you live your life, that weighs far more heavily on your health than anything else.

Dr. Gene Weber from Yakima, Washington also pointed out regarding that issue:

"When we go to the doctor a lot of the time, genetics are used against us to force the issue for prescribing what I feel are unneeded drugs, many for long term.

"There was a study done by Dr. Pottenger more than 60 years ago known as Pottenger's Cats that basically helps explain how we are what we eat, and how we can change our 'genetic' outcome by improving our lifestyle. This of course involves diet, exercise, and our emotional state to name a few. We need to know these things so we can make better choices when it comes to health care."

You can review other responses to this article at Vital Votes, add your own thoughts or vote on other's comments as well by first registering at Vital Votes.

A Single Meal Can Lead to Good (or Bad) Health Posted By Dr. Mercola | February 05 2008 |

<http://articles.mercola.com/sites/articles/archive/2008/02/05/a-single-meal-can-lead-to-good-or-bad-health.aspx>

It takes just one "bad" meal -- a cheeseburger, fries and a soda, fried chicken and biscuits, a slab of chocolate cake and ice cream -- to do damage to your body, according to new research.

The good news, however, is that eating just one good meal will start to repair the damage.

This occurs because, when you eat, your body breaks down the food into glucose (sugar), lipids (fats) and amino acids (the building blocks of protein).

As soon as you polish off the last of your high-fat, high-sugar meal, the sugar causes a large spike in your blood-sugar levels called “post-prandial hyperglycemia.” In the long term this can lead to an increased risk of heart attack, but there are short-term effects as well, such as:

- Your tissue becomes inflamed (as occurs when it is infected)
- Your blood vessels constrict
- Damaging free radicals are generated
- Your blood pressure may rise higher than normal
- A surge and drop in insulin may leave you feeling hungry soon after your meal

Eating healthy foods, such as fresh vegetables and fruits, lean proteins, and high-fiber items, will stave off post-prandial spikes and help to keep your blood-sugar levels even.

Even a small amount of alcohol appears to help blood-sugar levels stay stable.

The desire to eat junk food is a vicious cycle, the researchers pointed out, as the more you eat it the more your body craves it. This occurs because junk food distorts your hormonal profile, stimulating your appetite and causing you to crave unhealthy foods -- while making you feel unsatisfied when you eat only healthy ones.

The risky blood sugar spikes that follow a junk food meal are most likely to occur in people who don't exercise, or who carry weight around their abdomen.Sources:

Journal of the American College of Cardiology January 22, 2008; 51:249-255

Dr. Mercola's Comments:

The old saying “you are what you eat” is probably never more apparent than shortly after you eat a convenient, good-tasting junk-food meal. My guess is that most of the time you begin to feel tired, your mood sinks, your brain feels foggy, and you may even feel hungry again, not to mention all the guilt you have for putting things into your body that you know will move you toward sickness and disease.

When I was younger I used to really enjoy eating sweet rolls. At the time I did not realize that they were loaded with trans fat. But every time after I ate them I could feel a strange sensation on the roof of my mouth, and I knew I was harming myself. The key is to pay attention to the signals and clues your body is giving you, especially after you eat unhealthy food.

The more that you eat a diet full of sugar, grains and bad fats -- like trans fats and those from vegetable oils -- the more you are clouding your brain's ability to “hear” the biochemical signals that tell it to stop eating and storing fat.

These signals come from the hormones insulin and leptin, and their job is to, among other things, control your metabolism.

Insulin works mostly at the cellular level, telling the vast majority of your cells whether to burn or store fat and sugar, and whether to utilize that energy for maintenance, repair or reproduction.

Leptin, on the other hand, sends signals that reduce your hunger, increase fat burning and reduce fat storage.

However, when you regularly eat foods, such as sugar and grains, that cause your blood sugar to spike after you eat -- your body becomes resistant to these important messages.

The end result is a major miscommunication that tells your body to eat more and store more fat, instead of what it actually needs: to reduce hunger and burn fat. When your insulin and leptin levels are increased, it will become very difficult for you to use fat as a fuel as the enzymes required for doing this are significantly impaired.

Over time, this can lead to many chronic diseases, including:

- Obesity
- Diabetes
- Heart disease
- Autoimmune diseases
- Arthritis
- Osteoporosis

It Takes Just One Good Meal to Start Healing Your Body

While it's true that one bad meal will produce negative changes in your body, let's not overlook the most important finding in this study: it takes just ONE good meal to start things moving in a positive direction.

Just imagine the power that gives you. If you have been eating poorly recently, you can start reversing the process with your very next meal -- and start to improve your health right now.

You see, your body was designed to be healthy. It wants to move toward health and away from disease, and it will do its best to stay that way, provided you give it the proper tools -- the proteins, the healthy fats and the good carbs (mostly from veggies) and micronutrients -- that it needs to thrive.

If you end up feeling hungry, irritable, sleepy or sluggish after you eat, these are all signs that you are likely not giving your body the fuel that it needs to do its job properly. This fuel is different for everybody, and you can find out which exact foods your body is TRULY craving by finding out your nutritional type.

This program, which is outlined in detail in my book *Take Control of Your Health*, fine-tunes your diet for your individual nutrient requirements.

Take, for instance, a salad. On the surface, this is a healthy meal. Yet, the same salad is not ideal for everyone. Your body may do best with some chicken, olive oil and onions on your salad, or you may feel better by adding on some grass-fed steak, and using spinach instead of lettuce.

Once you know which foods your body needs (and which it does better without), you will truly be on the road to increased energy, an upbeat mood, and less risk of chronic diseases. In short, you'll be on your way to reaching optimal health.

And remember, this all starts one meal at a time.

<http://articles.mercola.com/sites/articles/archive/2005/09/03/its-not-your-genes-that-control-your-health.aspx>

As scientists continue to study the human genome, it looks more and more like DNA is not destiny.

The "Epigenome" Reacts to the Environment

The "epigenome," a layer of biochemical processes that turn genes on and off, plays an enormous role in heredity and health. Researchers believe that by mapping the epigenome, they can better predict and treat disease.

The epigenome is passed from parents to children, but changes according to environment, and is one reason that "identical" twins can be so different.

Could Advance Knowledge of Diseases

Some human cancers have already been connected with epigenetic changes. The same could be done for other diseases, which would further our understanding of the environmental aspects of health.

More Difficult to Map Than Genes Themselves

Mapping the epigenome will be difficult, since not only does it change over time, but it differs in every major cell type, of which there are several hundred.

"We are well under 1 percent finished; 1 percent would be a massive overstatement," said John Stamatoyannopoulos, who founded the biopharmaceutical company Regulome. "But, ultimately, this type of knowledge will revolutionize the way we diagnose and treat disease."

Sources:

Wired August 16, 2005

Dr. Mercola's Comments:

Genes have been blamed for all sorts of medical difficulties patients face when, in fact, it is the genes' expression that really counts. The study of epigenomes, which regulate your genetic expression, continues to give further support to this.

One of the main reasons scientists search for a genetic basis for disease is so they can develop an expensive drug or therapy to sell you that will generate enormous profits for one of the multi-national drug companies. It is my firm belief that the influence of genes on your health has been exaggerated.

I'm not saying that genetics play no role whatsoever, but our genes are merely dumb storage facilities that do very little to influence our health. Otherwise, you'd be helpless to do anything about your health, which, of course, isn't true at all.

In fact, your environment and your lifestyle choices have great influence on the expression of your genes, which is why healthy choices are the key to a long and satisfying life, rather than just the luck of the draw.