Dr. Joseph Mercola
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Total Health Program

The 11 Most Important Articles Containing Key Health Secrets You Need to Know

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The Secret Dangers of Splenda (Sucralose), an Artificial Sweetener

Is Splenda Really As Safe As They Claim It to Be?

As of 2005, only six human trials have been conducted on Splenda (sucralose). Of these six trials, only two of the trials were completed and published before the FDA approved sucralose for human consumption. The two published trials had a grand total of 36 total human subjects.

36 people sure doesn't sound like many, but wait, it gets worse, only 23 total were actually given sucralose for testing and here is the real killer:

The longest trial at this time had lasted only four days and looked at sucralose in relation to tooth decay, not human tolerance.

Why Do You Need to Know About Splenda?

Splenda, best known for its marketing logo, "made from sugar so it tastes like sugar,' has taken the sweetener industry by storm. Splenda has become the nations number one selling artificial sweetener in a very short period of time.

Between 2000 and 2004, the percentage of US households using Splenda products jumped from 3 to 20 percent. In a one year period, Splenda sales topped $177 million compared with $62 million spent on aspartame-based Equal and $52 million on saccharin-based Sweet 'N Low.

McNeil Nutritionals, in their marketing pitch for Splenda emphasizes that Splenda has endured some of the most rigorous testing to date for any food additive. Enough so to convince the average consumer that it is in fact safe. They claim that over 100 studies have been conducted on Splenda. What they don't tell you is that most of the studies are on animals.

Additional Concerns About Splenda Studies

There have been no long-term human toxicity studies published until **after** the FDA approved sucralose for human consumption. Following FDA approval a human toxicity trial was conducted, but lasted only three months, hardly the length of time most Splenda users plan to consume sucralose. No studies have ever been done on children or pregnant women.

Much of the controversy surrounding Splenda does not focus just on its safety, but rather on its false advertising claims. The competition among sweeteners is anything but sweet. The sugar industry is currently suing McNeil Nutritionals for implying that Splenda is a natural form of sugar with no calories.

Is It REALLY Sugar?

There is no question that sucralose starts off as a sugar molecule, it is what goes on in the factory that is concerning. Sucralose is a synthetic chemical that was originally cooked up in a laboratory. In the five step patented process of making sucralose, three chlorine molecules are added to a sucrose or sugar molecule. A sucrose molecule is a disaccharide that contains two single sugars bound together; glucose and fructose.

The chemical process to make sucralose alters the chemical composition of the sugar so much that it is somehow converted to a fructo-galactose molecule. This type of sugar molecule does not occur in nature and therefore your body does not possess the ability to properly metabolize it. As a result of this "unique" biochemical make-up, McNeil Nutritionals makes it's claim that Splenda is not digested or metabolized by the body, making it have zero calories.

It is not that Splenda is naturally zero calories. If your body had the capacity to metabolize it then it would no longer has zero calories.

How Much Splenda is Left In Your Body After You Eat It?

If you look at the research (which is primarily extrapolated form animal studies) you will see that in fact 15% of sucralose is absorbed into your digestive system and ultimately is stored in your body. To reach a number such as 15% means some people absorb more and some people absorb less. In one human study, one of the eight participants did not excrete any sucralose even after 3 days. Clearly his body was absorbing and metabolizing this chemical. That is what our bodies are supposed to do.

The bottom line is that we all have our own unique biochemical make-up. Some of you will absorb and metabolize more than others. If you are healthy and your digestive system works well, you may be at higher risk for breaking down this product in your stomach and intestines. Please understand that it is impossible for the manufacturers of Splenda to make any guarantees based on their limited animal data.

If you feel that Splenda affects you adversely, it is valid. Don’t let someone convince you that it is all in your head. You know your body better than anyone else.

How to Determine if Splenda is Harming You

The best way to determine if Splenda or sucralose is affecting you is to perform an elimination/challenge with it. First eliminate it and other artificial sweeteners from your diet completely for a period of one to two weeks. After this period reintroduce it in sufficient quantity.

For example, use it in your beverage in the morning, and eat at least two sucralose containing products the remainder of the day. On this day, avoid other artificial sweeteners so that you are able to differentiate which one may be causing a problem for you. Do this for a period of one to three days. Take notice of how your body is feeling, particularly if it feels different than when you were artificial sweetener free.

Splenda May Still Be Harming You

If you complete the elimination/challenge trial described above and do not notice any changes then it appears you are able to tolerate Splenda acutely. However, please understand that you are not out of the woods yet.

The entire issue of long-term safety has never been established. Let's look at the facts again:

- There have only been six human trials to date
- The longest trial lasted three months
- At LEAST 15% of Splenda is not excreted from your body in a timely manner

Considering that Splenda bears more chemical similarity to DDT than it does to sugar, are you willing to bet your health on this data? Remember that fat soluble substances, such as DDT, can remain in your fat for decades and devastate your health.

If the above facts don't concern because you believe the FDA would not ever allow a toxic substance into the market then read on.

Do You Really Believe These People Are Going to Protect You?

Please consider that the only organizations between you and potentially toxic side effects are the FDA and the manufacturers of sucralose (Tate & Lyle) and of Splenda (McNeil Nutritionals).

The FDA has a long standing history of ineffective screening and rampant conflict of interests as demonstrated in their inability to identify Vioxx as too dangerous to be on the market. This mistake costs 55,000 people their lives.

Now the point I want you to understand here, because it is really important, is that Splenda is not a drug and is only a food additive. As such the number of studies required to receive FDA approval is substantially less than drug. Vioxx had an order of magnitude of more comprehensive clinical trials than Splenda ever did, and despite this rigorous approval process it still killed 55,000 people.

So, now you have the primary concerns I have about Splenda and the choices is yours.

Read Splenda Horror Stories

We have more people on our site that have reported adverse reaction to Splenda than were formally studied in the research submitted for FDA approval. It would seem this collection of data is in some ways superior to the data submitted to the FDA for Splenda approval.

You can help us continue our Splenda research by supplying us with your own experience. If you or anyone you know have had an adverse reaction to Splenda or sucralose containing products please tell us your story.

Dr. Mercola's Comment:

Don't let these large companies fool you. There is no magic alternative to sugar when it comes to sweeteners. You simply can not have your cake and eat it too when it comes to this area. It is far too early to tell, as not enough people have consumed this product to observe large numbers of adverse effects.

However, I have had a number of patients in our Wellness Center who have had some severe migraines and even seizures possibly from consuming this product.

My advice?

AVOID Sucralose.

I am fond of telling people that if something tastes sweet you probably should spit it out as it is not likely to be to good for you. This of course, is a humorous exaggeration, but for most people who struggle with chronic illness, it is likely to be a helpful guide.

PLEASE note this article is being written in 2000. This is one of the first comprehensive clear investigative reports and warnings on sucralose on the Internet.

Related Articles:

Sucralose (Splenda®) U.S. Product List

The Potential Dangers of Sucralose: Reader Testimonials

The Dangers of Chlorine and Issues With Sucralose

12 Questions You Need to Have Answered Before You Eat Splenda

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Q&A: Is newly FDA approved sweetener sucralose good for you? Executive Health's Good Health Report, Nov98, Vol. 35 Issue 2, p6, 1p, 1c.

Gain B. FDA approves J&J Sweetener. Chemical Week, 04/15/98, Vol. 160 Issue 14, p27, 1/4p.

Sucralose Toxicity Information Center

Splenda Product Web Site

Official Tate & Lyle Sucralose Web Site

Endurance News, Issue 26.

The Hidden Cause of Parkinson's Disease Lurking in Your Fridge

Middle-aged men who drink one or two glasses of pasteurized milk a day may double their risk of Parkinson's disease later in life, according to a study. Researchers are uncertain of what is causing the link, whether an ingredient or contaminant in the milk, but believe it is not related to calcium.

The 30-year study followed over 7,500 men between the ages of 45 and 68 who were part of the Honolulu Heart Program. During the study, 128 men developed Parkinson's disease, which is a degenerative disease of the nervous system.

Specifically, those who drank more than 16 ounces of milk each day were 2.3 times more likely to develop Parkinson's than those who didn't drink any milk. During each 12-month period, 6.9 cases of Parkinson's would be expected per 10,000 people who drank no milk; however, among those who drank more than 16 ounces daily, 14.9 cases per 10,000 people would be expected. Overall, however, researchers pointed out that the Parkinson's risk was still very low, even among the men who drank a lot of milk.

The findings are in line with a previous study that found eating a lot of dairy products increased the risk of Parkinson's in men (the findings did not apply to women). In the current study, no link between calcium and Parkinson's was found, so researchers believe another component or contaminant of milk is responsible. Further studies are needed to determine what that component may be.

Neurology March 22, 2005;64(6):1047-1051

Dr. Mercola's Comment:

Earlier this year I wrote about all the steps you can take to avoid the 10 most common toxins in the water, food and air we breathe. That's what drew me to this study that found middle-aged men may more than double their risk of succumbing to Parkinson's disease if they drink lots of milk every day (compared to those who don't drink it at all).

Scientists couldn't identify the exact ingredient in milk that triggers Parkinson's in middle-aged men. However, they were able to conclude that it wasn't calcium, and thought it was either a contaminant in the milk or another ingredient. Perhaps environmental toxins, which are clearly linked to Parkinson's, are now in our milk supply and are causing this phenomenon (for instance, in June 2004 it was found that California milk may be contaminated with rocket fuel.)

I strongly suspect that pasteurization was the "other ingredient" that contributed to

Parkinson's. Pasteurization is thought to improve milk, but it actually distorts the three-dimensional shape of the proteins in the milk and converts them into foreign proteins that can actually harm your body. The study used pasteurized milk, and I suspect the results would be dramatically different if raw milk were used.

If you or your family currently drink milk, it is important for you to find healthy raw milk sources. Less than 1 percent of the milk consumed in America is raw, which is most unfortunate as raw milk can be a highly nutritious, health-promoting food (unlike pasteurized milk).

In fact, I have seen so many of my patients recover their health with raw milk that I perceive this to be one of the most profoundly healthy foods you can consume. To that end, I strongly recommend you visit the Real Milk Web site to locate a farmer in your area who produces raw milk products.

Tips for Preventing Parkinson's Disease

Now that I've finished commenting on the newly discovered risk factor for Parkinson's, I'd like to review the other ways to reduce your risk of this disease, and prevention is really the best route to take. Here's what can help:

- **Regular exercise is one of the best ways to protect against the onset of symptoms of Parkinson's disease.**
- **Avoid pesticide and insecticide exposure (as well as exposure to other environmental toxins like solvents). This is particularly important as summer approaches and mosquito fogging increases.**
- **Eating more vegetables, which are high in folic acid, is another highly effective step to prevent Parkinson's disease.**
- **Make sure your body has healthy levels of iron (neither too much nor too little).**
- **Consider coenzyme Q10, which may help to fight the disease.**

For more tips check out my past article on How to Prevent Parkinson's Disease.

Related Articles:

The Real Reasons Why Raw Milk is Becoming More Popular

Exercise Provides Shield Against Parkinson's

Solvents Increase Risk of Parkinson's

The Most Dangerous Potato Chips to Eat

Public knowledge of the serious dangers found in potato chips may finally be surfacing. The California-based Environmental Law Foundation (ELF) has filed notices with the state's attorney general against potato chip manufacturers:

- Lay's potato chip maker PepsiCo Inc.
- Pringles maker Proctor & Gamble Co.
- Cape Cod potato chip parent Lance Inc.
- Kettle Chips maker Kettle Foods Inc.

... that would require them to place labels on their products warning consumers about the high levels of acrylamide found inside. Acrylamide is formed when starchy foods are baked or fried at high temperatures and is considered a cancer-causing chemical by the Office of Environmental Health Hazard Assessment.

Manufacturers who sell their products without such warnings are in violation of California law, California Proposition 65.

The attorney general's office has 60 days to decide to pursue the case; if the state declines, the ELF will file lawsuits against the companies.

What Do the Chip Makers Have to Say?

The reaction from the chip makers was on the defensive ... though the Food and Drug Administration's (FDA) wavering position on the dangers of acrylamide certainly doesn't help.

Perhaps the FDA should review the report developed by the ELF that listed just how far various chip brands exceeded the state's required warning levels for acrylamide. The offenders include:

- Cape Cod Robust Russet: 910 times
- Kettle Chips (lightly salted): 505 times
- Kettle Chips (honey dijon): 495 times
- Pringles Snack Stacks (pizza-flavored): 170 times
- Lay's Baked: 150 times

Chew on that ...

Reuters June 17, 2005

Environmental Law Foundation June 16, 2005

Dr. Mercola's Comment:

I suspect nearly everyone reading this enjoys the taste of potato chips. However, they are clearly one of the most toxic processed foods you can eat. Do you really want to trade a few moments of taste pleasure for cancer?

Potato chips are loaded with acrylamide. This is only one of the many side effects that occur when food is highly processed; for instance, using high temperatures to cook foods can contribute to the formation of carcinogenic substances. Another similar example occurs when meats are cooked at high temperatures. In this case, heterocyclic amines can be formed.

Ideally, you should consume foods that are minimally processed to avoid these types of toxic byproducts. I assure you that there are many others, most of which have yet to be discovered. Acrylamides have only been known for a few years and many experts discounted them when they were first discovered.

In the best case, over half of your foods should be uncooked and eaten in the raw state. My diet is typically about 80 percent to 90 percent raw foods, and I find it is one of the major ways that I am able to remain healthy and avoid all sorts of health problems and challenges.

It may take you awhile to have more than 50 percent of your diet raw but start by throwing out the obvious and well-known processed foods that there is absolutely no excuse to consume:

- **Doughnuts**
- **French fries and potato chips**
- **All sodas**

You may also be interested in reviewing my popular list of what I feel are the worst possible foods you can eat.

Related Articles:

Does Acrylamide in Common, Cooked Foods Cause Cancer?

The Dangers of Over-Cooking Your Food

Powerful Spices Block Cancer Development

The antioxidant, anti-inflammatory and anti-carcinogenic properties of curcumin, the powerful yellow spice found in both turmeric and curry powders, have been undergoing intense research in various parts of the world.

According to researchers from the University of Texas M.D. Anderson Cancer Center, curcumin blocks a key biological pathway needed for development of melanoma and other cancers.

The spice stops laboratory strains of melanoma from proliferating and pushes the cancer cells to commit suicide by shutting down nuclear factor-kappa B (NF-kB), a powerful protein known to induce an abnormal inflammatory response that leads to an assortment of disorders such as arthritis and cancer.

Flavorable Findings

Researchers treated three different melanoma cell lines with curcumin and evaluated the activity of NF-kB, as well as IKK, a protein that triggers NF-kB. Results showed that despite how much curcumin was used, the spice still:

- Prohibited both proteins from being activated
- Worked to stop the growth of melanoma
- Induced cell suicide

More on Curcumin

Curcumin has long been utilized in India and other Asian nations for multiple uses, including a food preservative, a coloring agent, a folk medicine to cleanse the body and as a spice to flavor food.

What's telling, however, is that in India (where the spice is widely used) the prevalence of the top four U.S. cancers -- colon, breast, prostate and lung -- is 10 times lower.

Cancer July 11, 2005

Science Daily July 14, 2005

Dr. Mercola's Comment:

Wouldn't life be boring without spice?

Spices are absolutely wonderful and make quite a dramatic difference in the flavor of food. I also find it amazing that not only do we get a flavor boost, but many of the spices will actually improve our health.

Some of my favorite spices are the hot spices, and I love Thai food. I am not as attracted as much to the curries, though.

That brings up a point, as you really do want to honor what your body tells you. If any food or spice does not taste good or "feel right," stay away from it -- no matter who is telling you how good it is for you. Your body is a far better judge of that than anything you will ever read. In other words:

Listen to your body.

Your body is designed to give you all the feedback you need to make the right food and lifestyle choices. Unfortunately, most of you do not tune in to this important feedback system and do not fully utilize the benefits it can bring you.

It can even cure cancer.

Cancer is a big deal. It's estimated that nearly 1.5 million new cancer cases and nearly 600,000 cancer deaths will occur in the United States this year. Cancer has recently unseated heart disease as America's number one killer of people under the age of 85.

So if you like curry, then by all means use it regularly in your diet, as the evidence is very compelling that it will prevent cancer. But if you don't like it, then don't worry, as there are no "magic bullets" for cancer. Just incorporate the other approaches to avoiding cancer into your life:

- **A healthy diet**
- **Exercise**
- **Sleep**
- **Stress reduction**
- **Limit toxin exposure**

Related Articles:

Garlic Could be Used as Cancer Treatment

Twelve Changes That Will Cut Your Cancer Risk in Half

Cancer's Sweet Tooth

Cholesterol is NOT the Cause of Heart Disease

By Ron Rosedale, MD

Ron Rosedale, MD

Cholesterol is not the major culprit in heart disease or any disease. If it becomes oxidized it can irritate/inflame tissues in which it is lodged in, such as the endothelium (lining of the arteries). This would be one of numerous causes of chronic inflammation that can injure the lining of arteries. However, many good fats are easily oxidized such as omega-3 fatty acids, but it does not mean that you should avoid it at all costs.

Common sense would indicate that we should avoid the oxidation (rancidity) of cholesterol and fatty acids and not get rid of important life-giving molecules. Using the same conventional medical thinking that is being used for cholesterol would lead one to believe that doctors should reduce the risk of Alzheimer's disease by taking out everybody's brain.

In fact, cholesterol is being transported to tissues as part of an inflammatory response that is there to repair damage.

The fixation on cholesterol as a major cause of heart disease defies the last 15 years of science and deflects from real causes such as the damage (via glycation) that sugars such as glucose and fructose inflict on tissues, including the lining of arteries, causing chronic inflammation and resultant plaque.

Insulin & Leptin Resistance

Hundreds of excellent scientific articles have linked insulin resistance and more recently leptin resistance to cardiovascular disease much more strongly than cholesterol, and they are in fact at least partially responsible for cholesterol abnormalities. For instance, insulin and leptin resistance result in "small dense" LDL particles and a greater number of particles.

This is much more important than the total cholesterol number. Because of particle size shift to small and dense, the total LDL cholesterol could still be low even though the number of particles and the density of the particles is greater. Small, dense LDL particles can squeeze between the cells lining the inside of the arteries, the "gap junction" of the endothelium, where they can get struck and potentially oxidize, turn rancid, and cause inflammation of the lining of the arteries and plaque formation.

Importantly, many solid scientific studies have shown a mechanistic, causal effect of elevated insulin and leptin on heart and vascular disease, whereas almost all studies with cholesterol misleadingly only show an association. Association does not imply cause. For

instance, something else may be causing lipid abnormalities such as elevated cholesterol and triglycerides, and also causing heart disease.

This “something else” is improper insulin and leptin signaling. Similarly, sugar does not cause diabetes; sugar is just listening to orders. Improper insulin and leptin signaling is the cause of diabetes. Likewise, cholesterol does not cause heart disease, but improper metabolic signals including improper signals to cholesterol (causing it to oxidize) and perhaps to the liver that manufactures the cholesterol, will cause heart and vascular disease and hypertension.

Removing cholesterol will do nothing to improve the underlying problems, the real roots of chronic disease, which will always have to do with improper communication, and the generals of metabolic communication are insulin and leptin. They are really what must be treated to reverse heart disease, diabetes, osteoporosis, obesity, and to some extent aging itself.

Cholesterol; Wrongly Accused?

Before we can begin to talk about the real cause and effective treatment for heart and blood vessel disease, we must first look at what is known, or I should say what we think we know. The first thing that comes to mind when one hears about heart disease is almost always cholesterol. Cholesterol and heart disease has been almost synonymous for the last half-century. Cholesterol has been portrayed as the Darth Vader to our arteries and our heart. The latest recommendation given by a so-called panel of “experts” recommends that a person’s cholesterol be as low as possible, in fact to a level so low they say it cannot be achieved by diet, exercise, or any known lifestyle modification. Therefore, they say cholesterol-lowering drugs; particularly the so-called “statins” need to be given to anyone at high risk of heart disease. Since heart disease is the number one killer in this country that would include most adults and even many children. The fact that this might add to the $26 billion in sales of statin drugs last year I’m sure played no role in their recommendations.

Or did it?

Expert Conflict of Interests

Major consumer groups think so. They found out that eight of the nine “experts” that made the recommendations were on the payroll of pharmaceutical companies that manufacture those drugs. Major scientific organizations have chastised medical journals for allowing the pharmaceutical industry to publish misleading results and half-truths. There is a major push under way to force the pharmaceutical industry (and others) to publish results of all of their studies, and not just the ones that appear positive. The studies that showed negative results would be forced to be published also.

It could be that lowering cholesterol might not be as healthy as we are being told. More and more studies are coming out showing just how unhealthy lowering cholesterol might be, particularly by the use of statin drugs. In particular, statin drugs have been shown to be harmful to muscles causing considerable damage. A common symptom of this damage is muscular aches and pains that many patients experience on cholesterol-lowering drugs, however most do not realize that these drugs are to blame.

Hmm...isn't the heart a muscle?

Statin Drugs Actually Increase Heart Disease

Indeed, low cholesterol levels have been shown to worsen patients with congestive heart failure, a life-threatening condition where the heart becomes too weak to effectively pump blood. Statin drugs have been shown to also cause nerve damage and to greatly impair memory. One reason that statin drugs have these various serious side effects is that they work by inhibiting a vital enzyme that manufactures cholesterol in the liver. However, the same enzyme is used to manufacture coenzyme Q10, which is a biochemical needed to transfer energy from food to our cells to be used for the work of staying alive and healthy.

Statin drugs are known to inhibit our very important production of coenzyme Q10. Importantly, while many cardiologists insist that lowering cholesterol is correlated with a reduction in the risk of heart attacks; few can say that there is a reduction in the risk of mortality (death). That has been much harder to show. In other words it has never been conclusively shown that lowering cholesterol saves lives. In fact, several large studies have shown that lowering cholesterol into the range currently recommended is correlated with an increased risk of dying, especially of cancer.

No Such Thing as Good and Bad Cholesterol

Because the correlation of total cholesterol with heart disease is so weak, many years ago a stronger correlation was sought. It was found that there is so-called "good cholesterol" called HDL, and that the so-called "bad cholesterol" was LDL. HDL stands for high-density lipoprotein, and LDL stands for low-density lipoprotein. Notice please that LDL and HDL are lipoproteins – fats combined with proteins. There is only one cholesterol. There is no such thing as a good or a bad cholesterol. Cholesterol is just cholesterol. It combines with other fats and proteins to be carried through the bloodstream, since fat and our watery blood do not mix very well.

Fatty substances therefore must be shuttled to and from our tissues and cells using proteins. LDL and HDL are forms of proteins and are far from being just cholesterol. In fact we now know there are many types of these fat and protein particles. LDL particles come in many sizes and large LDL particles are not a problem. Only the so-called small dense LDL particles can potentially be a problem, because they can squeeze through the lining of the arteries and if they oxidize, otherwise known as turning rancid, they can cause damage and inflammation. Thus, you might say that there is "good LDL" and "bad LDL." Also, some HDL particles are better than others. Knowing just your total cholesterol tells you very little. Even knowing your LDL and HDL levels do not tell you very much.

A mistake that is rarely made in the hard-core sciences such as physics seems to be frequently made in medicine. This is confusing correlation with cause. There may be a weak correlation of elevated cholesterol with heart attacks, however this does not mean it is the cholesterol that caused the heart attack. Certainly gray hair is correlated with getting older; however one could hardly say that the gray hair caused one to get old. Using hair dye to reduce the gray hair would not really make you any younger. Neither it appears would just lowering your cholesterol.

Perhaps something else is causing both the gray hair and aging. Even if elevated cholesterol were significant and heart disease (which I question) perhaps something else is causing the elevated cholesterol and also causing the heart disease.

Let's look little more at cholesterol or, as Paul Harvey was fond of saying, "the rest of the story." First and foremost, cholesterol is a vital component of every cell membrane on Earth. In other words, there is no life on Earth they can live without cholesterol. That will automatically tell you that, in of itself, it cannot be evil. In fact it is one of our best friends. We would not be here without it. No wonder lowering cholesterol too much increases one's risk of dying. Cholesterol also is a precursor to all of the steroid hormones. You cannot make estrogen, testosterone, cortisone, and a host of other vital hormones without cholesterol.

Cholesterol Is The Hero, Not The Villain.

It was determined many years ago that the majority of cholesterol in your bloodstream comes from what your liver is manufacturing and distributing. The amount of cholesterol that one eats plays little role in determining your cholesterol levels. It is also known that HDL shuttles cholesterol away from tissues, and away from your arteries, back to your liver. That is why HDL is called the "good cholesterol;" because it is supposedly taking cholesterol away from your arteries. But let's think about that.

- Why does your liver make sure that you have plenty of cholesterol?
- Why is HDL taking cholesterol back to your liver?
- Why not take it right to your kidneys, or your intestines to get rid of it?

It is taking it back to your liver so that your liver can recycle it; put it back into other particles to be taken to tissues and cells that need it. Your body is trying to make and conserve the cholesterol for the precise reason that it is so important, indeed vital, for health.

One function of cholesterol is to keep your cell membranes from falling apart. As such, you might consider cholesterol your cells "superglue." It is a necessary ingredient in any sort of cellular repair. The coronary disease associated with heart attacks is now known to be caused from damage to the lining of those arteries. That damage causes inflammation. The coronary disease that causes heart attacks is now considered to be caused mostly from chronic inflammation.

What Is Inflammation?

Think of what happens if you were to cut your hand. Within a fraction of a second, chemicals are released by the damaged tissue to initiate the process known as inflammation. Inflammation will allow that little cut to heal, and indeed to keep you from dying. The cut blood vessels constrict to keep you from bleeding too much. Blood becomes "thicker" so that it can clot. Cells and chemicals from the immune system are alerted to come to the area to keep intruders such as viruses and bacteria from invading the cut. Other cells are told to multiply to repair the damage so that you can heal. When the repair is completed, you have lived to be careless another day, though you may have a small scar to show for your troubles.

We now know that similar events take place within the lining of our arteries. When damage occurs to the lining of our arteries (or even elsewhere) chemicals are released to initiate the process of inflammation. Arteries constrict, blood becomes more prone to clot, white blood cells are called to the area to gobble up damaged debris, and cells adjacent to those damaged are told to multiply. Ultimately, scars form, however inside our arteries we call it plaque. And the constriction of our arteries and the "thickening" of our blood further predisposes us to high blood pressure and heart attacks.

So Where Might Cholesterol Fit Into All Of This?

When damage is occurring and inflammation is being initiated, chemicals are being released so that that damage can be repaired. One could speculate that to replace damaged, old and worn-out cells the liver needs to be notified to either recycle or manufacture cholesterol since no cell, human or otherwise, can be made without it. In this case, cholesterol is being manufactured and distributed in your bloodstream to help you repair damaged tissue and in fact to keep you alive.

If excessive damage is occurring such that it is necessary to distribute extra cholesterol through the bloodstream, it would not seem very wise to merely lower the cholesterol and forget about why it is there in the first place. It would seem much smarter to reduce the extra need for the cholesterol -- the excessive damage that is occurring, the reason for the chronic inflammation.

So Why Take Cholesterol-Lowering Drugs?

The pharmaceutical companies thought that you might think that. They went back to the drawing board. They did more "research" and found (coincidentally) that statin drugs had anti-inflammatory effects. Therefore we're currently being told to stay on our cholesterol-lowering drugs because now they work by reducing inflammation and perhaps not even by reducing cholesterol, and in fact perhaps in spite of it. Aspirin reduces inflammation for a lot less money. So does vitamin E, and fish oil, and dietary changes without the dangers of drugs and having many other benefits instead.

What About Triglycerides?

Triglycerides are just medical terminology for fat. A person with high triglycerides has a lot of fat in the bloodstream. Triglycerides are generally measured when a person has fasted overnight. High fasting triglycerides are either from manufacturing too much, or using (burning) too little. In other words, what high triglycerides are telling you is that you are making too much fat and you are unable to burn it. This indeed is a major problem. The inability to burn fat underlies virtually all of the chronic diseases of aging, and in fact may contribute to the rate of aging itself.

As such, one might think that the control all fat burning and storage might be very important in heart disease, and the other diseases of aging such as diabetes, obesity, osteoporosis, and even cancer. Indeed, this appears to very much be the case. The two hormones that to a major extent control our ability to burn and store fat, insulin and leptin, appear to play a major role in all of the chronic diseases of aging. I would call them the most important hormones, indeed chemicals in the entire body. But that is a story for next time.

Related Articles:

Leptin: How Diabetes and Obesity Are Linked

What You Don't Know About Leptin Can Make You Fat

Wise Up and Stop Eating Your Muscles for Fuel

By Ron Rosedale, MD

Ron Rosedale, MD

Some of you may be thinking, "I may eat a lot of starchy carbohydrates, but at the same meal, I am also eating protein and fat. Why am I just burning sugar and storing fat?" It's a good question, and it gets to the heart of the vicious cycle.

Let's assume that you are following the current dietary recommendations that tell you to eat more than half of your daily calories in the form of carbohydrate. You fill your plate with a cup or so of pasta, topped with meatballs, some tomato sauce and cheese.

From the minute the pasta is in your mouth, it begins to be broken down into simple sugar. Your body can only store a small amount of sugar at a time in the form of glycogen that is stored in muscle and liver. What's not stored as glycogen is burned off as quickly as possible, forcing you to burn sugar, but your cells can only burn so much off at a time.

What happens to the rest of the sugar that isn't being stored or burned? It is converted into saturated fat. What about the protein and the fat in the meal that you just ate? Some of the protein is taken up by the cells for repair and maintenance, but your cells can only utilize a small amount of protein at a time. The rest, largely, is turned to sugar and stored as saturated fat. That leaves just the fat that is not burned when sugar is around to burn, which gets stored away as more fat.

Why isn't the protein and fat burned as fuel? Because you must first burn up sugar if it is available. If you eat sugar and fat together, you have to burn sugar first before you burn the fat. Furthermore, your cells get used to burning a particular fuel, in this case, sugar.

When you are younger, your metabolism is more flexible, and you can switch fuels more easily. As you get older, your cells get stuck in a rut, and if they are used to burning sugar, they will look for more sugar to burn when they need fuel.

You have to burn almost every gram of *available* sugar before fat burning kicks in.

Your Cellular Addiction to Sugar

Being a sugar burner is not a good thing. Your cells begin to crave sugar, and they don't care where the sugar comes from. If you go to sleep and you're still in a sugar-burning mood, your body is going to continuing look for sugar to burn as you sleep. You won't like where it gets it.

When your cells are "hungry," they will quickly go through the starchy glycogen in your liver and muscle to get sugar, however, your body would prefer to save your stored sugar (glycogen) for anaerobic) emergencies, such as sprinting away from a lion, and therefore

will only give up a small portion.

Do You Really Want to Use Your Muscles as Fuel?

Thus, your cells will continue to look elsewhere for sugar to burn by breaking down protein in your muscle and even bone, which it can also burn as sugar. This is a far more significant cause of osteoporosis than not taking calcium supplements.

Here's the kicker: As long as there is sugar to be had, and your hormones are telling you not to burn fat, your cells won't go into your fat stores. You can have pounds of excess fat just waiting to be burned, and your cells will bypass it to get to sugar. As long as you continue to eat a high-carbohydrate, high-sugar, or excess protein diet, your body will keep on burning sugar and storing fat.

As long as you are leptin-resistant, you will stay hungry because of the brain's inability to "hear" leptin. When you are leptin-resistant, your brain is telling your body to make fat, store it and, importantly, to conserve the fat that you have. You then have no choice: You must burn sugar.

Stop Eating Your Muscles

In order to break the vicious cycle, you need to retrain your brain to instruct your cells to burn fat as your body's primary fuel. When you are a true fat-burner, your cells eat fat even when you're not eating. When your cells need energy, they can get it from your fat stores. You're burning fat all the time, even when you're sleeping, and you don't eat your muscles and bone. Your brain doesn't care whether the fat just came from what you eat, or whether it comes from deep in your viscera by delving into your fat stores.

Your arteries will also be allowed to burn their own fat stores -- the plaque that ultimately can plug them up. If you start burning the fat you've stored, you feel satisfied and you won't get hungry because your cells are being properly nourished.

Our prehistoric ancestors actually ate a lot more fat than we do today, and did not routinely eat grains or much fruit because they weren't often available. They had no choice but to be fat-burners, and not surprisingly, their bodies were leaner, their bones stronger, and they did not appear to suffer from the same chronic diseases we do today.

I'm not suggesting that they ate an optimal diet. They had limited choices, but ironically, they probably ate better than most of the world's population does today.

Once you become a proficient fat-burner, when your cells need energy, they will get it from your fat stores. Your brain doesn't care whether the fat comes from the food you just ate, or from the fat that is embedded in your abdomen, arteries or other places in your body. It will start burning off the excess fat you have stored by feeding your cells the healthy fat they need.

And, you will not be hungry: You will get healthier and you will slow the rate at which you age.

Dr. Mercola's Comment:

I could not agree more strongly with Dr. Rosedale's elegant and eye-opening explanation of how our metabolism works. Understanding these principles will help us choose our foods more wisely.

Just to remind you about Dr. Ron Rosedale's credentials, 10 years ago I listened to his lecture on insulin and it transformed my entire understanding on nutrition and was largely responsible for my first NY Times best-selling book.

He is also one of this country's leading experts on leptin, a hormone whose appreciation is where insulin's was 10 years ago. Over the past few months, he has been kind enough to expand on the new appreciation of leptin a number of times on my Web site.

The original draft of his book, The Rosedale Diet, had the best explanation of the science of leptin written. However, publishers are under pressure to sell books to the masses to make money, thus his book was edited to do so, and some of the science did not make it past the scissors.

The public's loss is your gain in this case, as you are now able to read some excerpts of his original version that have not been previously published.

In addition to sharing nutrition interests, Dr. Rosedale and I both share photography as a hobby. Later this summer we are getting together so he can teach me some of his landscape photography insights.

Related Articles:

21st Century New Kid on the Block: Leptin

Burn Fat, Not Sugar, to Lose Weight

Diabetes Is Not A Disease Of Blood Sugar!

Insulin and Its Metabolic Effects

Modify Your Diet so You Feel Terrific

Generally speaking, eating a meal that is right for your metabolic type should produce marked and lasting improvement in your energy, your mental capacities, your emotional well-being, and leave you feeling well-satisfied for several hours.

If you are already feeling good, eating should, at the very least, help to maintain your energy level. But if you feel worse in some way an hour or so after eating, such as:

- You still feel hungry even though you are physically full
- You develop a sweet craving
- Your energy level drops
- You feel hyper, nervous, angry or irritable
- You feel depressed

... then it might be due to an improper combination of proteins, fats and carbohydrates at your last meal. You might be eating the perfect foods for your metabolism, but having too much of one type of food in place of another can easily produce the symptoms listed above.

Everyone Has Their Own Unique Metabolic Type

Many people come to my office eating very high-quality nutritious foods and are still quite sick. They haven't touched sugar or junk food in ages and still suffer with many health problems. There are a number of reasons for this, but one of the major physical ones is related to the fact that they are not eating appropriate foods for their metabolic type.

If you are interested in truly optimizing your health, your weight, and your energy -- and in avoiding premature aging -- one of the most important steps you should take is to learn your metabolic type and eat according to it. What may be very healthy for others is not necessarily as healthy for you, and vice-versa, and eating according to your metabolic type is really the only way to ascertain what is really good for you.

To get full details on this essential principle and to assess your metabolic type, I highly encourage you to read my new book, Dr. Mercola's Total Health Program: 150 Delicious Grain-Free Recipes & Proven Metabolic Type Plan to Prevent Disease, Optimize Weight and Live Longer. Along with 150 brand-new delicious and very nutritious low-carb recipes geared toward your metabolic type, the book includes a test and the means to learn and understand your own metabolic type and gear your diet precisely toward the foods that are right for you (and that also satisfy you!).

You will learn the right (and wrong) foods to fight and prevent disease and improve the way you feel--physically and emotionally -- and that help you prevent disease. To get more of a general idea of metabolic typing, though, consider the following analogy.

Simple Fuel Analogy

Just as food is fuel for our bodies, gas is food for our cars. Imagine for a moment that you have pulled into an exclusive gas station that has secured the highest quality gasoline from one of the world's leading refineries ... gas that has been screened carefully and shown to be free of anything that would possibly harm your car's engine.

It would seem reasonable to believe that your car is going to thrive on that high-quality gas once you put it in your tank. But what if you were driving a diesel-powered vehicle? If that were the case, in a few minutes your car would stop running, and you would have a very expensive repair job ahead of you.

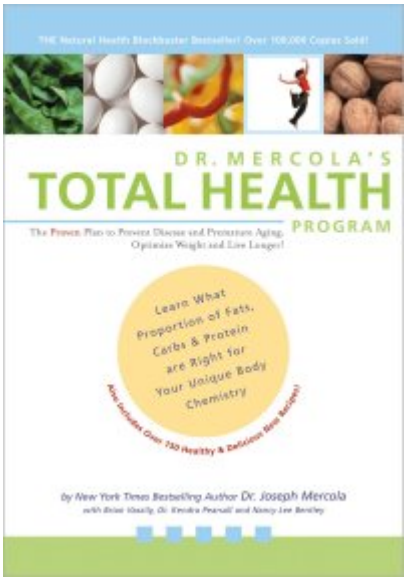
The fact that the car stopped running does not imply that the gas wasn't any good or that your car was defective. It was simply the wrong type of fuel for your car.

Like your car, your body was designed for a certain correct type of fuel ... that is, a certain correct blend of the right food types. The further you deviate from this ideal, the more health problems are likely. That is why some of the sickest people I see in my practice are those who are "designed" to be eating high-proteins foods but have decided to be vegetarians. Conversely, carb types who choose to eat high amounts of meats also don't do very well.

Different Metabolic Types

Once you fill out the questionnaire in Dr. Mercola's Total Health Program you will learn that you belong to one of three general types:

- Protein
- Carb
- Mixed



The Metabolic Typing Diet, by one of the pioneers of metabolic typing, William Wolcott, also has a basic test for you in the book. This is an excellent companion or follow-up reading to my new book, as it provides in-depth insights on how and why understanding your specific biochemistry is crucial to optimizing your health and weight permanently.

While the tests in these books are helpful toward assessing your metabolic type, the most comprehensive and succinct test is the full clinic one available through certified metabolic typing clinicians. This Intermediate test is administered online and is evaluated by a sophisticated computer program that generates a 25-page comprehensive report. The program is based on over 25 years of clinical experience. Prior to the program it took someone nearly eight hours to make these calculations by hand.

We currently use the Intermediate Metabolic Typing test on nearly all of our patients here at The Optimal Wellness Center. Our staff nutritionists take about one hour to review the results with our patients to help them understand and carefully apply it. The Intermediate

test has been one of the most profoundly effective tools I have ever encountered at helping us accurately establish the optimal foods people were designed to improve their health with.

Different Metabolic Types

Protein types do better on low-carbohydrate, high-protein and high-fat diets. A typical ratio might be 40 percent protein and 30 percent each of fats and carbohydrates, but the amounts could easily shift to 50 percent fats and as little as 10 percent carbohydrates depending on individual genetic requirements.

Carb types normally feel best when the majority of their food is carbohydrate. However, just as we only have one word for snow while the Eskimos have many more, we only have one word for carbs while there are actually different types. There is a major difference between vegetables and grains and yet they are both referenced as "carbs."

Not All Carbs are Created Equal

While this is technically correct, if one doesn't understand the practical distinction between grains and vegetables, one is likely headed for a health disaster. It is important to remember that over two-thirds of Americans are either obese or overweight, and nearly every one of these individuals needs to lower their insulin levels.
Additionally, most people with high blood pressure, high cholesterol and diabetes also struggle with elevated insulin levels that respond quite well to grain restriction.

So what nearly all of these people--likely over 85 percent of the U.S. population--will benefit from is not a low-carb diet (the Atkins Diet), but the grain-free diet outlined in detail in my new book.

So if you are a Carb Metabolic Type you will require about 60 percent of your food as carbs, 25 percent protein and 15 percent fat, but this type may need as little as 10 percent fat and as high as 80 percent carbs in exceptional times. If you followed an Atkins Diet you might improve initially but eventually your system would break down because it required far more carbohydrate.

Once a person attains a normal weight and does not struggle with other insulin related disorders, it is actually possible to consume some grains and remain perfectly healthy. Carb types actually can do quite well with grains, but remember this is likely to only be about 15 percent of the population at best.

If your Metabolic Type is mixed, your requirements are between the carb and protein types. This is actually the most challenging type to have as ultimately you will have to rely quite heavily on developing your own feedback by answering the questions after every meal.

Don't stress out about the percentages; they are only rough guidelines. Even if they needed to be precise, you wouldn't take the time or make the effort to eat exact percentages of foods every single time you ate, especially for the rest of your life.

Additionally, your activity and stress levels will affect and alter the quantity of food, as

well as the ratio of proteins, fats and carbohydrates, you need to feel your best.

Last, there is also a circadian rhythm to account for. Your biochemistry moves through various phases throughout the day. These rhythms involve your hormonal output, your acid/alkaline shifts, your waking/sleeping times and many other time-based variables. While some people will have a need for the same ratios of protein, fat and carbs at each meal, others will discover that they need very different ratios at the different meals in order to derive optimum energy, well being and performance.

What is the Solution?

Well, you will find the program, outlined in detail in my new book, is really quite simple and straightforward. In general, you first start by eating the proportions of proteins, fats and carbs according to your taste and appetite.

Next, analyze your reactions to your meal and discover how well you did in selecting the right ratios for yourself. A table to help you do this is provided below so you can take a look, and this table is also included in the book.

Finally, if you did not react optimally to your meal, change the ratios the next time you eat that meal and again analyze your reactions. In this way you can fine-tune each meal to the ratios of proteins, fats and carbs that are just right for you.

As an example of how the ratios can make a difference, I used to have a salad with some meat in it for lunch. However, several hours later I would feel absolutely famished, and I could not make it through the afternoon without strong food cravings. Then I realized I needed far more fat in my diet, in my case about 40 percent. Once I increased my fat intake my cravings disappeared.

Remember that you should feel terrific one hour after you eat. If you are still having food cravings or your energy level is lower, these are giant clues that you are likely not eating appropriately for your metabolic type.

You Can Fine-Tune the Diet for You

Even without the more advanced Intermediate program you can start the process of improving your health by carefully analyzing your responses to different foods. After all, your body is the best instrument available to make this analysis.

You can start by printing the Fine-Tuning table below (derived from "The Metabolic Typing Diet") and using it to help guide you in balancing your ideal ratio of proteins, fats and carbohydrates. Fill it out one to two hours after each meal. When you eat the right ratios, you'll only check the "positive" responses. Any "negative" responses will mean that you need to adjust the ratios.

For example, suppose an hour after lunch you felt sleepy, hungry and wanted some caffeine or something sweet. These are clear indications that the ratios at lunch were far from what they should have been for your metabolism. So the next day, eat the same foods for lunch but dramatically change the ratios.

As a result of this change, you will feel noticeably better... or worse. Either way you win. Either you'll know you are on the right track or you will have learned that you need to go in the opposite direction with your ratios. In other words, if you dramatically increased your protein and lowered your carbs and your symptoms worsened, you'll know that what you needed to do at that meal was actually lower your protein and increase your carbs.

Your body knows best--far more than any diet expert ever will. It will always tell you in no uncertain terms exactly how well you did in giving it what it needs, once you learn how to interpret your own "body language." So have fun discovering your own unique needs. You'll be amazed at the results.

If you are interested in learning more about my dietary program including metabolic typing, check out Dr. Mercola's Total Health Program: 150 Delicious Grain-Free Recipes & Proven Metabolic Type Plan to Prevent Disease, Optimize Weight and Live Longer. This book, presenting my entire dietary and health plan that took over two decades to develop -- and over 150 brand-new healthy and delicious recipes -- is guaranteed for life or your money back, and all my profits from this book go to a new non-profit health association I co-founded.

- **Fine-Tune Your Diet table**

Related Articles:

To Succeed at Any Diet, You Must Know Your Metabolic Type

"I am Eating Healthy Organic Foods, So Why am I Still Feeling Miserable?" Finally, A Solid Answer!

Native Climate May Influence Your Ability to Burn Calories

The Five Absolute Worst Foods You Can Eat

By Dr. Joseph Mercola
with Rachael Droege

There are no "bad" foods, right? Only food you should eat in moderation? Well, not really. The following foods are so bad for your body that I really can't see any reason to eat them. Not only do they have zero nutritional value, but they also give your body a healthy dose of toxins, which should make the idea of eating them really hard to swallow.

Doughnuts

Doughnuts are fried, full of sugar and white flour and most all varieties contain trans fat. Store-bought doughnuts are made up of about 35 percent to 40 percent trans fat.

An average doughnut will give you about 200 to 300 calories, mostly from sugar, and few other nutrients.

It's too bad that Americans view doughnuts as a breakfast food as, nutritionally speaking, eating a doughnut is one of the worst ways to start off your day. It will throw off your blood sugar and won't stay with you so you'll be hungry again soon. You are better off eating no breakfast at all, or better yet grabbing a quick glass of Living Fuel.

Soda

One can of soda has about 10 teaspoons of sugar, 150 calories, 30 to 55 mg of caffeine, and is loaded with artificial food colors and sulphites. I can't think of any good reason to ever have it. The diet varieties are also problematic as they are filled with harmful artificial sweeteners like aspartame.

Studies have linked soda to osteoporosis, obesity, tooth decay and heart disease, yet the average American drinks an estimated 56 gallons of soft drinks each year. Plus, drinking all that sugar will likely suppress your appetite for healthy foods, which pave the way for nutrient deficiencies.

Soft drink consumption among children has almost doubled in the United States over the last decade, which is not surprising considering that most school hallways are lined with soda-filled vending machines.

Schools often make marketing deals with leading soft drink companies such as Coca-Cola from which they receive commissions--based on a percentage of sales at each school--and sometimes a lump-sum payment, in exchange for their students' health. School vending machines can increase the consumption of sweetened beverages by up to 50 or more cans of soda per student per year.

If you routinely drink soda--regular or diet--eliminating it from your diet is one of the simplest and most profound health improvements you can make.

French Fries (and Nearly All Commercially Fried Foods)

Potatoes are bad enough when consumed in their raw state, as their simple sugars are rapidly converted to glucose that raises insulin levels and can devastate your health. But when they are cooked in trans fat at high temperatures, all sorts of interesting and very unpleasant things occur.

Anything that is fried, even vegetables, has the issue of trans fat and the potent cancer-causing substance acrylamide.

Foods that are fried in vegetable oils like canola, soybean, safflower, corn, and other seed and nut oils are particularly problematic. These polyunsaturated fats easily become rancid when exposed to oxygen and produce large amounts of damaging free radicals in the body. They are also very susceptible to heat-induced damage from cooking. What is not commonly known is that these oils can actually cause aging, clotting, inflammation, cancer and weight gain. You can read the article "Secrets of the Edible Oil Industry" for more information.

It is theoretically possible to create a more "healthy" French fry if you cook it in a healthy fat like virgin coconut oil. Due to its high saturated fat content, coconut oil is extremely stable and is not damaged by the high temperatures of cooking. This is why coconut oil should be the only oil you use to cook with.

I am fond of telling patients that one French fry is worse for your health than one cigarette, so you may want to consider this before you order your next ‘Biggie’ order.

Chips

Most commercial chips, and this includes corn chips, potato chips, tortilla chips, you name it, are high in trans fat. Fortunately, some companies have caught on to the recent media blitz about the dangers of trans fat and have started to produce chips without trans fat.

However, the high temperatures used to cook them will potentially cause the formation of carcinogenic substances like acrylamide, and this risk remains even if the trans fat is removed.

Fried Non-Fish Seafood

This category represents the culmination of non-healthy aspects of food. Fried shrimp, clams, oysters, lobsters, and so on have all the issues of trans fat and acrylamide mentioned above, plus an added risk of mercury.

Seafood is loaded with toxic mercury and shellfish like shrimp and lobsters can be contaminated with parasites and resistant viruses that may not even be killed with high heat. These creatures, considered scavenger animals, consume foods that may be harmful for you.

Eating these foods gives you a quadruple dose of toxins--trans fat, acrylamide, mercury

and possibly parasites or viruses--with every bite.

If you have a taste for seafood, there's an easy solution. It's best to avoid your local fish fry and try the only fish I now eat--the delicious wild red Alaskan salmon that was proven through independent lab testing to be free of harmful levels of mercury and other contaminants.

Related Articles:

The Real Dangers of Soda to You and Your Children

Cauliflower French Fries

The Dangers of Over-Cooking Your Food

Not Any Old Fish Food Will Reduce Heart Attacks

Clams and Oysters Contaminated with Dangerous Bacteria

Soda Causing Nutritional Deficiencies in Children

Flatten Your Abs Forever

By Paul Chek, HHP, NMT
Founder, C.H.E.K. Institute

It would not be an understatement to say there is a worldwide obsession with flattening the abs. Scarce is the bodybuilding, exercise or beauty magazine without an article on how to exercise the abdominals. Women hate that dreaded pooch belly, and love men with washboard abs. Men innately believe the girl with great abs is seldom less that a hot package - thus the obsession.

Unfortunately, the fitness world has beaten the crunch to death. Every variation of crunch torture you could ever imagine has been, and continues to be, published, yet our abs are not getting flatter! Bodybuilders often go to great extremes such as starvation diets, diuretics, laxatives and even enemas to evacuate the organs and bowels for flat abs before going on stage. Even those methods don't always get the job done!

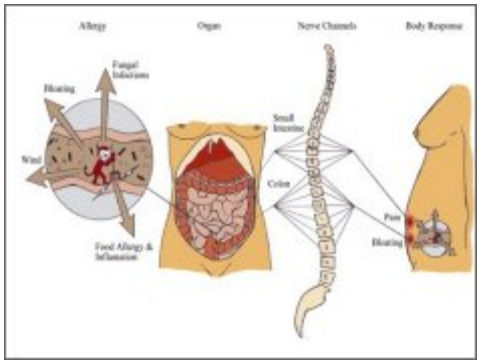


Figure 5
See All Figures

As you can see in Figure 1 (click here to see all figures), the middle bodybuilder's lower abs are just not responding to his attempts to flex like those of the other competitors. In Figure 2, you see two belly dancers whose lower abdominals are distended and lack tone. Clearly these people don't suffer from lack of exercise, so what could it be?

Quite frankly, it could be any number of several challenges that commonly express themselves as dysfunction in the abdominal wall. Because there are so many causes of abdominal dysfunction, I'll give a quick crash course in relevant anatomy and physiology. Then, I can share exercises that will work much better when you've got your insides working correctly.

Abdominal Anatomy 101: Nerve Supply

Most exercise professionals today are taught that there is no such thing as upper and lower abdominals. This is just plain false. As a group, the abdominals run from the bottom of your chest (sternum) all the way to your pelvic bones and pubic bone. Along the way, they pick up a nerve from each section of the spine beginning with the 5th thoracic (middle back) segment and ending with the first lumbar (low back) segment.

At the belly button, there is a change in the way the nerves feed the muscles. Above the belly button, a nerve comes from each segment of the spine from T5 down to T11, yet everything from the belly button down gets its nerve supply from only two segments (T12 and L1) (Figure 3).

This is very important because the change in the way the muscles are supplied by the nervous system indicates a clear neurological/anatomical division between upper abs and lower abs. Since it is the lower abdominals that are the most challenging to flatten, particularly for women, we will focus on them here.

Abdominal Anatomy 101: Functional Considerations

Functionally, the female abdominal wall is placed under greater overall demand than the male abdominal wall for a number of reasons. The female pelvis is wider and shallower to allow for childbirth. The female pelvis is also naturally tipped forward more than a male pelvis to allow easier birthing.

Consequently, the wider, shallower female pelvis places a woman's hips wider than a man's, making the lower spine more susceptible to gravity's tendency to increase spinal curvature. This difference in the pelvis produces what is referred to as a greater Q angle (Figure 4).

The greater Q angle pushes the knees toward each other and encourages flattening of the feet if not effectively controlled by the abdominal muscles and subordinate stabilizers. All of these differences in the female pelvis cause the female reproductive organs and intestinal tract to rely much more heavily on the abdominal wall for support than the male.

Even the act of moving places greater demand on women's lower abs. This explains the higher incidence of lower abdominal protrusion among women than men.

Abdominal Anatomy 101: Organs Talk To Muscles

Each organ in the human body shares an intimate relationship with the bones, joints, ligaments, tendons, muscles, hormonal glands and nerve centers that come from related developmental tissues. The body is neatly packaged so each of the major nerve centers communicates with specific organs.

For example, looking at Figure 5, you can see the small intestine shares sensory experiences with the upper abdominal muscles via the nerves from the 5th, 6th, 7th, 8th and 9th segments of the thoracic (middle) spine. The colon, on the other hand, gets its sensory nerves from the 9th thoracic segment all the way to the 3rd lumbar (low back) segment and shares pain with the lower abdominal muscles.

Because the brain can not differentiate between pain in the muscle and pain in the organs with which those muscles share sensory nerves, whenever one tissue is in pain, be it muscles, blood vessels, joints or ligaments, all related tissues behave as though they are in pain.

This is critical to understand if you want to flatten your abs forever, because it means what you eat (including drugs) and drink, your bowel habits and the general health of your internal organs has a greater influence over how nice your abdominal wall looks and functions than your exercises do. (Figure 5!)

If you look at the bottom diagram in Figure 6, you'll see, once we remove the little devils

in the gut -- be they fungi, parasites, bad bacteria, genetically modified foods, overly processed foods, gut irritants such as food additives, foods to which we are allergic or intolerant and restore optimal bowel habits -- the abdominals no longer act like they are being attacked either. Over and over again, I've seen abdominals flatten and become far more aesthetically pleasing than they ever were through exercise alone.

Now That You Know What You're Looking At ...

In keeping everything I've shared with you to this point, please look at the album cover in Figure 7, and see what you notice about the dancer's lower abdominals. How about Figure 8? Next, look at Figure 9, which shows pictures of the famous belly dancer Neon who follows the principles of healthy living. You can see what her more functional lower abdominal muscles look like. It's safe to say that her organs receive much better support.

Figure 8
See All Figures

And don't think for a moment that abs like Neon's are unobtainable because of your age or having children. Take a look at my friend, C.H.E.K Nutrition and Lifestyle Coach, Sandy Leo (Figure 10). She has beautiful abs at the age of 44 and has three children!

Why does she look so good? Because she knows how to take care of herself and follows the principles in my book, How To Eat Move & Be Healthy! (Those of you living in New Zealand who are looking for a C.H.E.K Practitioner may contact her at sandy.leo@xtra.co.nz.)

How to Get Your Abs to Flatten Forever

To keep this article manageable, I will focus on teaching exercises that help specifically flatten the abdominals. For more information, my book How To Eat Move & Be Healthy! [2] is a great resource to learn about to improve your internal health. The book provides a series of questionnaires that allow you to identify which nutrition and lifestyle factors are most likely to be obstructing your ability to achieve optimal results and a beautiful body.

To get the most of the exercises below, I recommend following these programming suggestions:

Figure 11a
See All Figures

1. Try each of the exercises starting with the 4-Point Tummy vacuum. If you can perform this exercise for three sets of 10 reps with 1-minute rest and not get sore the next day, you are ready to move forward to Lower Abdominal 1.
2. Don't perform any of the exercises here, if your muscles are sore from your last abdominal training session.
3. Once you begin Lower Abdominal 1, you may do it every day until you get sore. Then, as with any of these exercises, switch to a day on, day off program or wait until your muscle soreness doesn't impede your training.
4. Progress to each succeeding lower abdominal exercise (2 and 3) as soon as you can perform the current exercise with good form.
5. Never perform any abdominal or core isolation exercises like these before or during a typical workout program. They should be the final exercises of your workout. Fatiguing stabilizer muscles while they are needed to condition your body during a workout is a great way to get injured.
6. If you suffer from any kind of back problems, get clearance from your doctor or therapist to perform these exercises first. Once you start them, always perform them at the end of your workday. Fatiguing a stabilizer group before performing any functional activity, even if it is a light or simple task like raking the yard, dramatically increases your risk of injury since fatigued stabilizers decrease your ability to stabilize your spine and extremities!
7. Once you can perform three sets of 8-12 reps of Lower Abdominal 3 with your legs straight, you no longer need to do these exercises. Just implement them once each season to maintain your strength and coordination.
8. Always work at implementing abdominal drawing and active stabilization into your functional exercise, recreation, work and sporting activities until it becomes second nature.
9. You can learn important tips for progressing from the isolation exercises shown here to functional integration exercises in my book, How To Eat Move & Be Healthy!
10. Before you begin, stand against a wall with your heels, butt, back and head touching the wall. Slide your hand between the wall and your back with your hand at the belly button level (Figure 11a and 11b, click here to see all figures). If there is too little room for the thick part of your hand to fit perfectly in the space between your back and the wall, you probably have a reduced lumbar curve and must modify the instructions below.

Flat back people need to lay on their back, slide their hand under their back at the belly button level and get a sense for how much curve that creates. Then,

quickly slide the blood pressure cuff under your back and pump it up until you get the same basic feeling of arch in your back as when your hand was in there. Once that pressure is found, add an additional 30 mmHg to the cuff. That is your starting pressure.

This adjustment ensures that performing these exercises does not flatten your back further. It is a good idea to perform the wall standing test each week you do these exercises and adjust the cuff pressure accordingly (see product links below for more information).

4-Point Tummy Vacuum (Figures 12a and 12b)

- Assume a kneeling position with your hips over your knees and your shoulders over your hands. With your spine in neutral alignment, take a deep breath in and let your belly drop toward the floor.
- Exhale and draw your belly button in toward your spine, while keeping your back in the start position.
- Hold (with the TVA activated) for as long as you can comfortably.
- When you need to breathe in, relax your abdominal wall as you inhale and repeat the exercise for 10 reps.

Lower Abdominal 1 (Figures 13a and 13b)

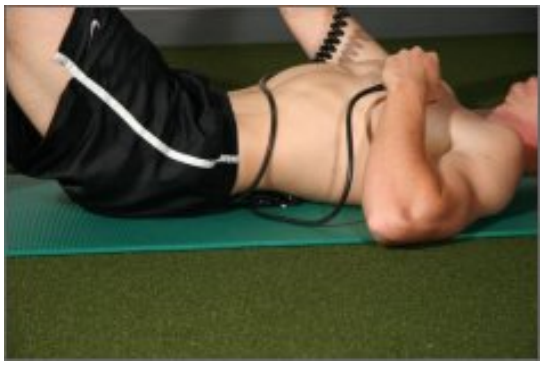


Figure 13b
See All Figures

- Lie on the ground with your knees bent and feet flat on the floor.
- Place a blood pressure cuff under your low back, directly underneath your belly button.
- Pump the blood pressure cuff to 40mmHg.
- Exhale, draw your belly button in toward your spine and gently increase pressure on the blood pressure cuff (see link below) by rotating your tailbone toward the ceiling until the blood pressure cuff reads 70mmHg.
- Hold this position for as long as is comfortable, up to 10 seconds, then rest for 10 seconds.
- Repeat this 10 times.
- While performing this exercise, try to relax the entire body while holding the needle at 70mmHg (this includes your jaw, neck, shoulders, trunk and legs).

Lower Abdominal 2 (Figures 14a and 14b)

- Lie on the ground with your knees bent and feet flat on the floor.
- Place a blood pressure cuff under your low back, directly underneath your belly button.
- Pump the blood pressure cuff to 40mmHg.

- Exhale, draw your belly button in toward your spine and gently increase pressure on the blood pressure cuff by rotating your tailbone toward the ceiling until the blood pressure cuff reads 70mmHg.
- Raise one foot off the ground until your thigh is perpendicular to the floor, keeping the needle of the blood pressure cuff at 70mmHg (a working range of +/- 5 mmHg is acceptable).
- Place the foot back on the ground and perform the same movement with the other leg.
- Alternate legs, performing 12-20 reps.
- If you have difficulty keeping the needle on 70mmHg, try using smaller leg movements.
- When it becomes easier to perform this exercise, straighten the lifting leg for an increased challenge.

Note: When this exercise can be done for three sets, progress to doing the exercise with both feet off the ground and only lowering one leg at a time. Adjust the size of your leg movements to allow staying in the target zone of 65-75 mmHg. Those with altered pressures to accommodate flat backs need to work within +/- 5 mmHg of their selected pressure.

Lower Abdominal 3 (Figures 15a and 15b)

Figure 15a
See All Figures

- Lie on the ground with your knees bent and feet flat on the floor.
- Place a blood pressure cuff under your low back, directly underneath your belly button.
- Pump the blood pressure cuff to 40mmHg.
- With your knees bent, raise both legs off the ground until your thighs are perpendicular to the floor. The blood pressure cuff should read 70mmHg.
- Exhale, draw your belly button in toward your spine and slowly lower your one leg to the ground while keeping the needle on 70mmHg; a working range of +/- 5 mmHg is acceptable.
- Raise your legs back to the starting position and perform 12-20 repetitions.
- If you have difficulty keeping the needle on 70mmHg, try using smaller leg movements.
- When it becomes easier to perform this exercise, straighten your leg for an increased challenge, or lower both legs at the same time.
- Remember to keep your body relaxed.

Enjoy flattening your abs forever! Remember, you can only truly flatten your abs from the inside out! If you need help developing your individual diet and exercise plan, visit the C.H.E.K Institute Web Site and locate a C.H.E.K NLC or C.H.E.K Practitioner near you. I urge you to learn more about C.H.E.K trained

practitioners as well as my philosophy on health and exercise.

- Flatten Your Abs Forever: Secrets of Abdominal Training (Video)
- You Are What You Eat (CD)
- Equal, But Not the Same!: Considerations for Training Females (Video, Manual, Test)
- How To Eat Move & Be Healthy (Book)
- Blood Pressure Cuff
- Blood Pressure Cuff Extender Hose

Images of Neon are reproduced with permission from Neon. For more information on belly dancing and its benefits to your health and well being, visit Neon's website.

References:

1. Human Embryology and Teratology by Ronan R. O'Rahilly, Fabiola Müller Publisher: Wiley-Liss; 2 edition (January 15, 1996) ISBN: 0471133515
2. How To Eat Move & Be Healthy! by Paul Chek, H.H.P., C.H.E.K Institute, 2004.

Paul Chek, Holistic Health Practitioner and certified Neuromuscular Therapist, is the founder of the C.H.E.K Institute in Vista, Calif. He is also sought-after consultant to sports organizations, his services have benefited numerous professional sports teams, athletes and individuals seeking optimal health worldwide.

Paul has produced more than 60 videos, 17 correspondence courses and is the author of several books, audio programs and articles. For more information on Paul's popular "You Are What You Eat" audio/workbook program, or for any of his other health/exercise courses, videos and books, call 800/552-8789, 800/552-8789 (New Zealand or Australia), 44 (0)1273-856-860 (Great Britain) or visit online at the CHEK Institute Web site. Please feel free to request a catalog of CHEK Institute products.

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The Healthy Way to Sit and Exercise at the Same Time

Exercising Your Shoulders Safely

Swiss Ball Training for Swimmers

Balance Training For the Elderly

The Number One Source of Calories in America

White bread, previously reported as the leading source of calories in the average American diet, has been dethroned; according to a study's preliminary findings, soft drinks and sweet drinks have successfully taken over.

Researchers studied the reported diets of a large nationwide sample of American adults. Among respondents of the 1999-2000 National Health and Nutrition Examination Survey (NHANES):

- More than two-thirds reported drinking enough soda or sweet drinks to supply them with a greater proportion of daily calories than any other food.
- Those who consumed sweet drinks had higher obesity rates.

Researchers are hopeful that by helping to identify the leading sources of excess energy in the American diet, the results may contribute to the development of strategies needed to fight obesity.

Additional Supporting Evidence

The above findings aren't the only strikes against soda and sweet drinks. According to the American Dietetic Association, relying on a soft drink to satisfy thirst cravings could waste a good deal of your daily calorie allotment.

Consider this: Most adults need about 1,600-2,400 calories a day and the average, 64-ounce "Big Gulp" non-diet sweet drink sold at convenience stores can account for as much as 800 calories in just one serving.

Therefore, how many calories are left for much-needed nutritious foods? Not much.

Science Blog May 27, 2005

Herald-Dispatch.com May 25, 2005

Dr. Mercola's Comment:

This amazing announcement that soda has become the largest source of calories in many people's diets is a sad commentary on the state of America's health. This is particularly tragic as soda is one of the easiest things to eliminate from your diet.

Soda consumption is likely the largest source of high-fructose modified corn syrup in the United States. And you probably know by now that sugar will devastate your insulin and leptin levels along with your ability to achieve high-level health.

Some conditions related to soft drink intake include:

- **Osteoporosis**
- **Attention deficit disorder (ADD)**
- **Insomnia**
- **Kidney stones**
- **Tooth decay**

The worst of all, however, may be obesity. Consider the fact that your risk for obesity increases by a whopping 60 percent for each can of soda you drink a day, and that obesity may actually lower the average age of death in the United States to a point so low that your children will be dying at a younger age than you do for the first time in history.

Fortunately, one of the most important steps you can take to improve your health is also one of the simplest: Switch from soft drinks to pure water.

Since sodas can be as addictive as nicotine I know that cutting them out of your diet completely may be difficult. To assist you and your children during any difficult times you may experience while doing so, I strongly recommend using the Emotional Freedom Technique (EFT), the energy psychology tool I regularly use in my practice. I suggest using Turbo Tapping, a modification of EFT, that can help you make this transition a quick and easy one.

Related Articles:

The Real Dangers of Soda to You and Your Children

All-Natural Fruit Juices are Not as Healthy as You Think

The Amazing Statistics and Dangers of Soda Pop

Do You Really Want to Risk Losing Your Mind?

Frustration may not be the only consequence of failing to ditch those excess pounds in midlife, for middle-aged obesity could increase one's risk of dementia--the decline of cognitive functioning--later on, according to a study.

Researchers reviewed the medical records of more than 10,000 people (between ages 40-45) who were members of the Kaiser Permanente health plan in Northern California from 1964-73. They conducted a follow-up on the health of the participants some 20 years later.

By 1994, physicians found 7 percent of the patients surveyed had been diagnosed with dementia. The results proved to be linked to body mass index (BMI), a ratio of weight to height:

- People with a BMI of 30 or above were 74 percent more likely to succumb to dementia than those of healthy weights.
- Those in the 25-29.9 BMI range had a 35 percent greater chance of dementia.
- Obese, middle-aged women were more prone to dementia, though both men and women who were the fattest were 60 percent to 70 percent more likely to have dementia than those who had the lowest levels of fat.

To make sure they had a pure link between obesity and dementia, researchers took into account other factors such as cardiovascular health and diabetes; they didn't examine, however, the physical activity of those surveyed, making it uncertain whether lack of exercise could play a part in the development of dementia.

So Why Does Obesity Lead to Dementia?

Though there is only speculation, one theory is that high-fat diets may damage the brain. Researchers also explained that obesity could lead to inflammation, causing problems in the brain.

British Medical Journal April 29, 2005 (Free Full-Text Article)

Dr. Mercola's Comment:

Considering we are in the midst of an Alzheimer's epidemic, it will be important to consider some simple proactive approaches, as losing your mind isn't a pretty thing.

A study published late in 2004, described how, in comparison to women who maintained normal weight levels, women who had been obese throughout their entire lives were found to be more prone to a loss of brain tissue in their temporal

lobes--the area in the brain responsible for speech, comprehension and memory.

If this information didn't attract your attention, I certainly hope the important results of the above study do.

Not only will losing weight decrease your chances of developing dementia, doing so will also help you:

- **Improve your energy level.**
- **Boost your emotional well-being.**
- **Enhance your ability to stay focused.**

Most importantly, you will improve the overall quality of your life.

To ensure healthy, effective and long-lasting weight loss, I recommend following the Total Health Program by:

- **Reducing (with the idea of eventually eliminating) your intake of grains and sugars. The body's storage capacity for carbohydrates is quite limited, so when you eat an excess of grains and sugars they are converted, via insulin, into fat.**
- **Modifying your diet according to your body's unique metabolic type. Foods that result in weight gain for some people may not have the same effect on others, so it is vitally important to determine which ones will help you and which ones won't. Metabolic typing is the best way I know of to do so.**
- **Getting on an exercise program.**
- **Improving your emotional health and well-being. It doesn't matter how devoted you are to a proper diet and lifestyle, emotional health is absolutely essential to losing weight and reaching your optimal health goals. That is why I suggest adopting the concept of my favorite psychology tool, the Emotional Freedom Technique (EFT).**

EFT is an energy psychology tool that uses acupressure techniques that can help you to channel your stress-related thoughts and leave you feeling calmer and more able to face your challenges.

Although losing weight is an important part of preventing dementia and Alzheimer's disease, there are additional ways to help shore up your defenses even more. They include:

- **Eating plenty of high-quality omega-3 oils.**
- **Avoiding most fish and removing mercury.**
- **Exercising. We all know that exercise is good for our cardiovascular system, but studies have found that exercise can also protect the brain, thereby warding off Alzheimer's and other forms of dementia. According to one study, the odds of developing Alzheimer's were nearly quadrupled in people who were less active during their leisure time, between the ages of 20 and 60, compared with their peers.**

  Also, please note that, in regard to dementia, choosing a variety of exercises

is even more important than how often, how long or how intense the exercise is performed.

- **Challenging your mind. Mental stimulation, such as traveling, learning to play an instrument or doing crossword puzzles, is associated with a decreased risk of Alzheimer's. Researchers suspect that mental challenge helps to build up the brain, making it less susceptible to the lesions associated with Alzheimer's disease.**
- **Avoiding aluminum such as in antiperspirants, cookware, etc.**
- **Eating plenty of vegetables according to your metabolic type.**
- **Avoiding flu vaccinations.**
- **Trying Wild Blueberry IQ, an all-natural, whole fruit softgel made from wild blueberries, which have high anthocyanin and antioxidant content that are known to guard against Alzheimer's and other neurological diseases.**

If you suffer from some form of dementia already, consider adding ginkgo to your diet.

Gary Craig's Comment:

While proper diet, lifestyle and emotional health are important for dementia, I find that balancing the energy meridians with EFT can often restore some of the lost mental capacity. We have many reports of this welcome benefit, including cases where Alzheimer's patients are able to recall specific memories AND recognize family members. Just go to our web site at http://www.emofree.com/AffiliateWiz/aw.asp?B=8&A=89&Task=Click&Advanced=True&TargetURL=http://www.emofree.com and enter Alzheimers into our search engine.

Gary Craig is a pioneering developer of EFT, a profoundly effective emotional/mental healing approach. I learned it from Gary and have taught it to patients in my clinic for years, and they have experienced truly incredible and permanent results with it.

Read more about Gary Craig's EFT Course.

Ron Rosedale, M.D. Comment

It is becoming fairly scientifically well-established that defects in leptin signaling, i.e. leptin resistance, is at the heart of the misappropriation of fat especially in visceral tissues. This, for instance, is partially behind the involvement of leptin resistance causing hepatic insulin resistance leading to diabetes. Stress is certainly one of the factors that can cause a chronic elevation in blood glucose secondary to cortisol, with concomitant metabolism of that glucose through adipocytes causing spikes in leptin, causing leptin resistance, which then in turn causes visceral adiposity.

One of the most prevalent, and powerful stresses that people subject to themselves is

diet, especially a diet which causes spikes in leptin which in turn causes surges in sympathetic nervous system response (which then in turn can cause elevated cortisone and the initiation of a vicious cycle). This of course would be a diet high in starches and grains or excess proteins.

I do not feel that cortisol is a primary cause of excess visceral fat (as seems to be a common misconception currently with popular infomercials such as "Cortislim"), since excess visceral adiposity will continue to worsen and even begin to initiate, after "adrenal fatigue" when cortisol levels are abnormally low (but leptin is still elevated).

Also, the association between obesity and other chronic diseases such as cardiovascular disease, asthma, arthritis, diabetes, and dementia is certainly contributed to by chronic inflammation, and again leptin is at the center of this, being itself a cytokine and also orchestrating the manufacture within adipocytes of numerous inflammatory chemicals such as TNFa.

Related Articles:

How to Easily and Inexpensively Blow Away Alzheimer's Disease

Keep Walking To Fight Dementia