

THE DOMINO EFFECT

The delicate relationship between stress, nutrition, lifestyle, and disease

BY BRIAN LUKE SEAWARD, PH.D.

My interest in nutrition is a bit different than that of most people. My intrigue comes from the rapidly paced lifestyles people live, which stand in sharp contrast to the lifestyles they wish to live, or even profess to live. How we spend both time and money on what should be a glorious, if not sensuous, event several times in the course of each day: “food, glorious food,” is quite revealing. Simply stated, if you wish to know someone’s real values in life, continually observe what they eat. This pastime, like one’s eyes, offers a clear window to the soul. When emotional stress is added to the nutritional equation, one can only be disheartened, if not disturbed, by these observations.

The World Health Organization (WHO) describes stress as a global epidemic, but I prefer the term, “equal opportunity destroyer.” What might begin in the mind as a threat ultimately cascades down the frame of the body as a physiological attack of the immune system. While financial problems, marital problems, and child rearing problems may top the list of stressors today, food choices and eating behaviors are not far behind. Research reveals that over half of Americans eat two of their three daily meals outside of the home (and those cooked at home are most likely processed and pre-packaged). Restaurants that span the spectrum, from fast food to haute cuisine, prepare meals for the taste buds, not the immune system. Refined sugar, bleached flour, salt, and fats of questionable origin continually top the list of dietary taboos, but these are the main ingredients that constitute a large proportion of what Americans eat today when they dine out. Restaurants, like everyone else, are trying to make a profit, which is why you will rarely see free-range chicken, fresh Alaskan salmon, or organic greens on any menu. There simply isn’t enough of a profit margin.

Sadly, when asked why so many people eat out rather than cook at home, the answer rings familiar for factory worker and corporate executive alike: after working a long day, they are just too tired. Still others say they are simply too bored with preparing the same



meals. Lethargy and boredom can become a lethal combination regarding eating behaviors and a healthy immune system.

A sobering statistic suggests that as much as 85 percent of all disease and illness is stress-related, everything from the common cold to cancer. More than just an association, stress is now recognized to have a direct causal link. As it turns out, the stress hormone cortisol destroys white blood cells. And while emotional stress (unresolved anger and fear) certainly plays a pivotal role in one’s physical health, it also appears to play a significant role in poor eating behaviors, hence setting the stage for serious and chronic health problems.

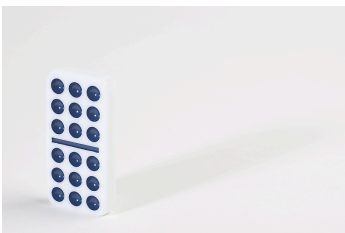
Is there a relationship between stress and food? Unequivocally yes! First and foremost, food is a pacifier. We may eat because we’re hungry, but the second reason topping the list is that food soothes our emotions. While anorexics and bulimics use food as a control measure, most everyone else uses food as a pacifier. And while the gastro-intestinal track is highly innervated with neural tissue to augment the efficiency of the fight or flight response, many people override this by overeating time and again.

The Stress Dominos

Imagine, if you will, that you have a series of dominos, each positioned to stand on end, close enough to each other that if one should fall, the others topple in succession. The metaphor of standing dominos illustrates the delicate relationship between stress, nutrition, lifestyle, and disease. What sets the first domino in motion to topple is stress. The dominos look something like this:

Domino # 1: Nutrient Depletion:

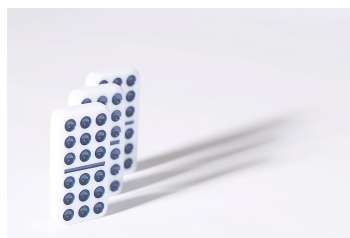
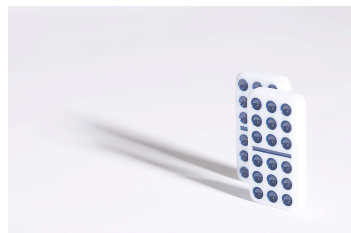
Chronic stress (the fight or flight response) tends to deplete nutrients essential for metabolism. Simply stated, energy is needed to defend your territory or run for the hills. The production of energy, beyond a mere resting state, requires fats, carbohydrates, and the necessary vitamins and minerals to initiate and regulate these metabolic processes. Even if one chooses not to fight or flee, the body prepares for this response, just in case you change your mind at the last minute. Over a short period of time this metabolic demand will deplete various essential nutrients. Topping the list are the water-soluble vitamins, C and B complex, and an array of minerals including calcium, magnesium, copper, chromium, selenium, iron, and zinc. When these run low, fatigue sets in. If they remain low, some physiological systems (e.g. reproductive, immune, endocrine, respiratory) become compromised.



Domino # 2: More Nutrient Depletion:

Twenty-first-century lifestyles tend to support meals and snacks that are anything but “nutrient dense.” Nutrient density is a term used to describe foods that contain a plethora of essential

vitamins and minerals. The term “empty calories” is used all too often to describe the foundation of a new form of American malnutrition (high calories, low nutrients) so often associated with junk food, processed food, and fast food. The bottom line is that depleted nutrients (see Domino # 1) are not replenished, thereby lowering the bar for a compromised immune system. Perhaps the most common symptom of this toppled domino is a sensation of general fatigue. Other signs include a higher susceptibility to colds and viruses, and menstrual issues.



Domino # 3: Stress-Trigger

Foods: Generally, food may serve as a pacifier, but some foods actually trigger the stress response, rather than calm it. A

metaphor to punctuate this domino falling is putting gasoline on the fire of stress. Topping the list of foods that contribute to this bonfire is caffeine, found not just in coffee and tea, but sodas, energy drinks, and the beloved treat: chocolate. A cover story in *National Geographic* magazine (July 2005) noted that caffeine is the number one drug in the world, perhaps supporting the claim by WHO of stress being a global epidemic. Jalapeno peppers notwithstanding, refined sugar and bleached flour are also thought to affect the nervous system negatively through the release of epinephrine to increase heart rate and blood pressure. Foods high in sodium content are known to increase water retention, thereby increased blood pressure. Many of these substances mentioned are often found in the comfort foods people use to pacify their stress, confusing the body, and ultimately doing more harm than good.

Domino # 4: Suppressed Immune System.

The immune system is comprised of many aspects, white blood cells being the most well known. This family of cells, however, includes other members such as macrophages and Natural Killer Cells—all of which circulate through the lymphatic system, thus forming the foundation of the immune system. Its purpose is to destroy both internal pathogens (e.g., cancerous cells) and external foreign substances (e.g., germs). Toxins (and there are many) found in our foods also signal an alarm to the immune system to respond by attacking these foreign invaders. Synthetic pesticides, herbicides, fungicides, as well as a plethora of synthetic fertilizers, hormones, and antibiotics overload an already overwhelmed immune system. Moreover, complications arise when traces of e-coli, campylobacter, salmonella, or listeria are found in the food as well. The newest threat on the horizon appears to come from genetically modified foods (known as G.M.O.'s) which are now associated with an increase in food allergies. Symptoms include respiratory problems, sinus problems, GI track problems, and a flushed face. These symptoms are the result of an overreaction rather than an under reaction to the immune system, but an overload nonetheless.



Stress and Nutrition 101

During the summer of 1994, I was invited to teach an undergraduate course in nutrition at the University of Colorado. Having a background in health psychology, this discipline was not exactly up my alley, but I love teaching so I said yes. At the time, I thought I held a pretty high standard for healthy eating. I made a practice never to eat fast food. Moreover, I shied away from junk food and most processed foods. Although not a vegetarian, my intake of meat was primarily Alaskan salmon and occasionally free range chicken. Keeping one class ahead of the students, I quickly learned being well versed in nutrition meant more than counting calories and popping vitamin supplements. Good eating is not just a lifestyle; it is a philosophy! It means being true to yourself and your body.

To augment my course content, I brought in a remarkable cast of guest speakers to spice up this evening class. Like my students, I was astonished to learn so many things that were never covered in any textbook at the time, specifically the one I selected. These insights of peril included a knowledge of trans-fats (partially hydrogenated oils,) essential oils (Omega 3 & 6) herbs, synthetic chemicals (fertilizers), bovine growth hormone, antibiotics, aspartame, and the list goes on. All the while, I am realizing that everything these guest speakers were addressing were considered a stress to the body as well.

The body is incredibly resilient, but it does have its limits. It can assimilate and eliminate toxins. This is what the immune system is required to do. But pass the tipping point, and these toxins take refuge in fat tissue (where the body stores many things besides excess vitamin A and D). Over time these toxins can cause real problems, from cancer to heart disease and everything in between. Add this stress to the emotional, mental and spiritual stress people deal with on a daily basis and it becomes easy to see why there are so many chronic health problems that impinge greatly on one's quality of life. My students and I learned quickly that while biochemistry of food, at best, is interesting, behavioral choices about food is essential to a healthy lifestyle.

Conscious Choices

John Robbins, author and one-time heir to the Baskin-Robbins ice cream fortune cleverly illustrates the hidden cost of a cheap fast food hamburger. Beginning with the amount of water and grain to feed a cow and ending with medical tests conducted to determine cancerous tumors, coronary heart blockage, or other maladies, there is a hidden cost to all inexpensive meals.

With each medical test, a stress domino is falling somewhere. I have several friends who claim to eat healthy, but like some recovering alcoholics, they acknowledge an occasional slip into the world of fast food foray. Without exception, each claims, with the sincerity of a repentant sinner at Saturday confession,

they will never violate the sanctity of their body again, only to weaken their resolve when stress becomes overwhelming. What's a person to do? For some it takes will power to pay homage to the health of our living tissues. For others it requires an awakening of the soul.

Through the eyes of a health psychologist, I have noticed that stress is not only a way of life for most people; it's a preferred way of life. People seem to use stress as a status symbol denoting how busy (productive?) they are. Who knew the ego was so involved with eating choices?

The Slow Movement

Fed up with the ludicrous lifestyles spawned by the fast-food society, Carlo Petrini woke up one day in

1986 to question his own eating behaviors, particularly his growing concern of the industrialization of food. He also questioned those people who, like lemmings jumping off a perilous cliff, willingly joined this consensual hallucination. Perhaps he was most concerned with the loss of thousands of food varieties and flavors due to what he called a "standardization of taste," a phenomenon most prevalent in the United States and Europe, but quickly spreading to all countries that comprise the ever shrinking global village. So... as a protest of McDonald's and other fast food restaurants in Rome, he created the Slow Food Movement, a non-profit organization based on the consciousness that promotes a series of lifestyle



behaviors to enjoy the quality of fresh food, the taste of home cooked recipes, and the family time associated with the social aspects of eating well prepared foods. The Slow Food Movement has affiliations in 50 countries including the US. The premise they advocate speaks to the pleasures and quality found in everyday life by slowing down, respecting the convivial traditions of the kitchen table and celebrating the diversity of the earth's bounty.

Petrini got a helping hand to slow things down in the world from Carl Honore, a Canadian journalist, who also woke up to the realization that living in the fast lane (e.g., food, technology, relationships, culture) was a short cut to disaster. In his best selling book, *In Praise of Slow*, Honore writes, "being slow is not about giving up or dropping out. It's about working and living better by shifting gears. Shifting down a gear gets the creative juices flowing and learning to unlearn the addiction to haste." In the words of comedian Lily Tomlin, "If you want fast acting relief, try slowing down."

Setting The Dominos Back Up

So, what can you do to slow down, tune in, and boost your immune system? While there are many ideas and suggestions, here are some of the more simple things you can do to bring balance back into your life, one step at a time.

1. Supplements: A vitamin supplement is good; perhaps even essential these days, but a few pills do not make a meal. In other words, don't start and end with a glass of water and a handful of capsules. Make sure your supplements are bio-available, meaning that they will be easily digested. Some very popular brand name supplements are mixed with heavy binders; hence, they simply pass through the GI track from one end to the other.

2. Organics: Organic food is always the best option when buying fruits and vegetables. Consider the higher cost an investment in your health. Washing produce with water does not rid them of synthetic pesticides, as these usually



travel up the roots into the foods themselves. Certified organic foods mean that the soil they have grown in has been free of intentional synthetic chemical use for a minimum of three years. The word natural used to mean organic, but now natural is primarily a marketing term to lure shoppers to think food items are organic.

3. Sugar: Do you have a sugar addiction? Most Americans do. Try going a week without eating refined sugar. It's hard. In fact it's really difficult because you can find sugar listed in most processed foods, toothpaste, chewing gum and sodas. Some studies show that refined sugar decreases white blood cell count. This may explain why colds and flus are so common during the holidays when foods high in refined sugar are abundant. The best health approach is to dramatically limit your intake of refined sugar. This may be hard at first, as most habits are. If stopping altogether is hard, try reducing sugar intake each day. Not only will your pancreas and immune system thank you, but you may see a dramatic loss in body weight as well.

4. Fresh Herbs: Herbs used in cooking are truly the spice of life. Fresh herbs contain essential oils that promote the integrity of the immune system. Oregano, rosemary, turmeric, cumin, and garlic not only make any meal taste better, they even fend off the score with unwelcome pathogens. How old are the spices in your spice rack? It might be time to reintroduce fresh (organic) spices to your kitchen. Many spices and herbs are considered antibacterial and antimicrobial, meaning that they enhance the immune system. Additional herbal supplements such as astragalus and echinacea have been used for centuries to boost the immune system.

5. Skin: Your mouth isn't the only portal through which you take nutrients (and other substances) into your body. Your skin is the largest organ of your body. Sunlight is used to synthesize vitamin D as it reacts with cholesterol in your cell membranes, assuming you get enough sunlight (most of us don't now). Deodorants, hand lotions, body lotions, sun block, make-up, and lip balm constitute a vast array of substances that are assimilated into the body through the skin. Many of these contain synthetic petrochemicals that are foreign to the body and are considered pathogens. As the saying goes, don't put anything on your skin that you wouldn't put in your mouth and swallow.

6. Water: The body requires hydration. The best hydration is water. A well-hydrated body helps to flush out toxins circulating in the body. All water is not created equal. The best water is filtered water. Consider investing in a high-quality water filtration system in your kitchen for drinking and cooking water.

7. Caffeine: Have you noticed the size of a cup of coffee today? People are getting their buzz quota in less than a few sips of a Grande. Caffeine will trigger

the stress alarm in your body, by releasing epinephrine and nor-epinephrine. If you are feeling stressed this is the substance to avoid. Remember that decaf does not mean caffeine free; it simply means less caffeine than regular caffeinated coffee. Remember too that sodas also contain caffeine, as do black teas. Avoid energy drinks altogether. Consider reducing your consumption of caffeine to one cup a day.

8. Essential Oils: The good, the bad and the ugly. Let's start with the ugly. By now you have probably heard how bad trans fats (partially hydrogenated oils)—oils turned solid at room temperature to avoid rancidity thus, increasing the shelf life of various products. Trans-fats are known to destroy cell membranes, and even DNA. Best to avoid these at all costs. Omega 3s & 6s are oils that the body cannot make; hence they are called essential oils. Omega 6s are prolific in the American Diet. Omega 3s are pretty scarce unless you eat a lot of cold-water fish. An imbalance of these essential oils tends to cause inflammation in people's joints. Omega 3s are also good for brain cells, thus various cognitive functioning. Where you store your cooking oils is also important. Light and heat tend to oxidize oils, making them go rancid faster. Rancid oils act similar to free radicals in that they destroy cell membranes and DNA. Most people store their cooking oils over the stove, exposing them to high heat from cooking. The best place to store cooking oils is in the refrigerator.

9. Mindfulness Eating: In his book *Spontaneous Healing* author Andrew Weil not only talks about healing eating behaviors, he adds a few supplemental behaviors as well, including turning off the television while you are eating. His argument is that most people, if they actually eat at home, do so watching the news. News is anything but uplifting, primarily because fear sells the evening news programs. Turn off the television while you eat. Consider joining the Slow Food Movement by being mindful of the foods you eat, how you prepare them, and how you eat the meals you prepare.

10. Eat at least one meal a day for your immune system. Whether it be breakfast, lunch or dinner, eat at least one healthy meal that is packed with nutrients that support a healthy immune system. Fruits and vegetables are great sources of these nutrients, as are legumes. Eating a variety of food is also an essential aspect of supporting the immune system, as the accumulation of toxin is greatest with eating the same foods over and over again. Consider cooking all evening meals at home or at a friend's house with fresh produce and herbs. Compile a list of seven to ten simple yet tasty meals that you can plan and cook in your culinary repertoire.

Bon Appetite!

Hunger may be a human drive, but learning to cultivate your appetite toward healthy, nutritious foods is an art we can all learn. Eating has been and continues to be considered one of the primary pleasures of life. It can still be that way. The most successful changes to behavior begin by including family members in this goal. Regarding the stress and nutrition equation, the words of Hippocrates, the father of modern medicine said it best, "Let food be your medicine and let medicine be your food." **AL**

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director of the Paramount Wellness Institute, a health promotion consulting firm in Boulder, Colorado. He is the author of several best selling books including *Stressed Is Desserts Spelled Backward* and *Stand Like Mountain, Flow Like Water*. He can be reached at www.brianlukeseaward.net.

Suggested Reading

The Slow Down Diet by David Marc
The Hundred-Year Lie by Randall Fitzgerald
Mad Cowboy by Howard Lyman
The Food Revolution by John Robbins
What To Eat by Marion Nestle
The Omnivore's Dilemma by Michael Pollan
Fast Food Nation by Eric Schlosser
Food & Mood by Elizabeth Somer
Eating For Optimal Health by Andrew Weil

Online:

www.slowfoodusa.org/about
www.inpraiseofslow.com/slow
www.planetizen.com/node/21630
www.drweilselfhealing.com