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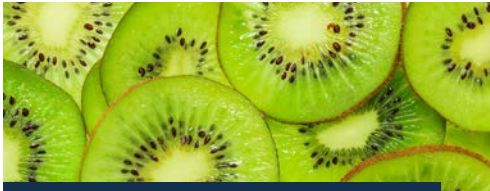
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Health Hunters

Newsletter

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Are You Rusting Inside?



THE AUTHOR

Nia Stephanopolous-Chichura, MD

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Summer 2016 in Kansas City, Dr. Nia is scheduling patients for the Riordan Clinic's new site and planning to write her Health Hunters article. She goes home and is in the kitchen cooking supper for her family with a well-seasoned, black cast iron skillet. After a tasty meal, she washes the skillet but suddenly is distracted by the sound of her toddler giggling. She quickly turns to find him taking a bite out of every apple in the fridge. In an attempt to save the apples from browning and play with her toddler, she forgets to dry the skillet. Dr. Nia then comes back 20 minutes later to find a red rusty skillet... Fiddlesticks!

You have probably encountered rust sometime in your life. It happens when iron oxidizes. Oxidation is what causes that shiny new piece of iron metal to turn dull and red. Oxidation can happen to other metals too and it can even occur in our bodies. In fact, oxidation is occurring constantly, and our body has ways to balance it through antioxidants.

If you look up anything about the process of oxidation, you may find that it takes place by means of something called 'free radicals.' Free radicals are like a fire. Many of the free radicals arise from the fire within us, called metabolism. Much of the metabolism of our cells takes place in the mitochondria. You can think of mitochondria as little power plants that power a city. They work day and night to convert energy to usable forms so that you can have the energy to think, walk, talk and be you. All of our cells make free radicals during metabolism in the mitochondria and they have a purpose, just as the power of fire can be harnessed and used as a tool for heat or light. However, if that fire gets out of hand it can cause excessive oxidative stress which breaks down our bodies quickly and we begin to age or rust inside.

We keep this fire in balance with anti-oxidants. The great news is that antioxidants can come from whole food sources! In fact, the U.S. Department of Agriculture has a rating scale, available to the public, comparing the antioxidant power of various foods. It is called the ORAC scoring system (Oxygen Radical Absorbance Capacity) and you may have seen this term with a number next to it on some of the fruit and vegetable labels in grocery stores. The higher the number, the more antioxidant capacity the food has and the more it can keep the fire of free radicals in check (meaning keeping you youthful and healthy).⁽¹⁰⁾

To give you some examples:

- | | |
|--|--|
| Rosehips 96,150 | Raw Pomegranate 4,479 |
| Raw Strawberries 4,302 | Raw Spinach 1,513 |
| Watermelon 142 | Sweet potato Baked in Skin 2,115 |
| Sprouted Raw Alfalfa Seeds 1,510 | Sweet Potato cooked, boiled without skin 766 |
| Raw Broccoli 1,510 | Sweet Potato Raw 902 |
| Boiled Broccoli 2,160 | Pecans 17,940 |
| Frozen Broccoli spears, unprepared 496 | Baking Chocolate unsweetened squares 49,944 |
| Raw Garlic 5,708 | Cocoa Dry Powder, unsweetened 55,653 |
| Portabella Mushrooms 968 | Acai fruit/pulp, skin, powder 102,700 |
| Raw Parsley 1,301 | Dried Rosemary 165,280 |
| Avocado, Hass, Raw 1,922 | Spices turmeric, ground 127,068 (10) |
| Lemon Juice, Raw 1,225 | |



Riordan Clinic is a not-for-profit 501(c)(3), nutrition-based health facility in Wichita, Kansas. We have integrated lifestyle and nutrition to help you find the underlying causes of your illness. Since our inception in 1975, the mission has been clear and unwavering to "...stimulate an epidemic of health."

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Thank you for reading,



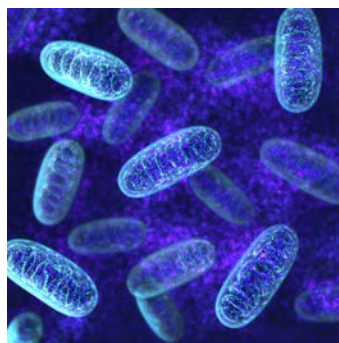
Erin Manning
Editor

Some common trends arise in perusing the ORAC values. The majority of spices rate extremely high. Many medicinal herbs produce some of the highest ORAC ratings known. We also begin to see what are known as “superfoods” such as cacao and acai berries which rank very highly. Superfoods tend to be very colorful and much of their antioxidant capacity is due to the colorful pigments they produce. Always remember to eat colorful foods and do not forget the spices! ⁽⁸⁾



You may be thinking that’s great, Dr.Nia, antioxidants can combat too much oxidative stress, but what is the purpose of having oxidation and anti-oxidation taking place in our cells anyway? Why would we have oxidation and free radicals at all if they can do damage? ⁽⁶⁾

The answer lies in a term called ‘hormesis.’ Hormesis says that a little bit of stress can make us stronger, but too much stress causes us damage. ⁽⁵⁾ You may have encountered the concept of hormesis when starting to work out for the first time in a long time. A little walk, a few weights to lift and you feel great the next day. A 3-hour session at the gym and you cannot move the next day. Scientists are finding that hormesis is occurring in our cells when we have just enough oxidation to trigger our cells to respond, get stronger, and heal more quickly. Scientists are finding that a key step in the process of getting our mitochondria and cells to multiply and maintain health is a pathway called NRF-2, which stands for nuclear factor erythroid-derived 2. You can think of NRF-2 as a thermostat inside the cell. If the fire from oxidation is getting too hot, the thermostat kicks in to cool it off. Basically, a little stress turns on the NRF-2 pathway in our cells and, once it is turned on, we generate many more antioxidants than ever before. We increase our cellular detoxification systems such as glutathione, we activate anti-inflammatory cascades, and we activate cell survival genes. All of these mechanisms combat chronic and acute diseases at their core, from heart disease, Parkinson’s disease, sepsis to autism to cancer, just to name a few. ^(1,2,4,7,9,11)



You may be asking, what can activate the NRF-2 pathway? Exercise, Sulforaphane and isothiocyanates from cruciferous veggies like broccoli sprouts, resveratrol from berries and grape seeds, catechins found in green tea, cacao and dark chocolate, ozone, even our natural lactobacilli bacteria can activate the NRF-2 pathway! ⁽³⁾ Science is just beginning to scratch the surface on the NRF-2 pathway, along with Oxidative Medicine, finding ways the bacteria and our mitochondria are actually talking with one another, and fostering communication among all of our cells for the health of our bodies. Much of the research up to this point has been conducted in sterile environments and

has not taken into account the microbiome or good bacteria normally found in and on the surface of the human body. There is so much more to be discovered and applied to humans for healing. We are living in very exciting and hopeful times, despite what much of the world may be telling us. Remain hopeful and truth seeking co-learners. I look forward to our next chat together!

Until then, I want to welcome you all to our new clinic office location in Kansas City, Kansas, as well as our campuses in Wichita and Hays. I will leave you with an adapted antioxidant-loaded chocolate recipe from author David Wolfe. Have a wonderful month of August.

Warm Regards,

Dr. Nia

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Cacao Kapow!

Serves 2 | Adapted from the book Superfoods by David Wolfe p.55

2 oranges

14 dried apricots, soaked in water 4 to 6 hours

½ cup almonds, dry (could substitute cashews, pecans, walnuts, hazelnuts, macadamia nuts)

1 heaping teaspoon of raw cacao nibs

2 tablespoons of raw cacao powder

Juice the oranges. Blend the orange juice with 10 of the apricots and place in 2 glasses. Blend the remaining apricots with almonds, cacao nibs, and chocolate powder. Keep it still slightly crunchy. Spoon this on top of the orange and apricot blend. You may also top this with some honey or other natural sweetener and orange zest Enjoy! (8)



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Adrenal hormones regulate metabolism (cortisol) by mobilizing fats, proteins and carbohydrates, control energy levels in response to stress (cortisol and adrenaline), maintain appropriate blood pressure by adjusting the balance of water and salt, and enhance the activity of other hormones. Unfortunately, repeated exposure to stressors may weaken and deregulate this delicate balance. For example, overall fatigue, weakness and loss of energy could follow an infection or disease condition; these desensitize the adrenal system by creating a temporary over-stimulated, high-demand condition in the body.

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How Your Gut Affects Your Immune System... And Makes You Sick



THE AUTHOR

Anne Zauderer, DC

Originally printed in the August 2014 edition of Health Hunters.

Ever wonder what really happens to food after you eat it? It's kind of a mystery how our body turns a delicious hamburger into, well, something not-so-delicious. Our food is our fuel. If our engines cannot properly burn that fuel, not only is it wasted but even worse, it can also turn into something that is toxic to our body.

So what exactly is digestion?

Digestion, as defined by Merriam-Webster, is "the process by which food is changed into a simpler form after it is eaten." Every step of digestion breaks our food down into smaller and smaller parts until it eventually gets to a form that the body recognizes and can use. So digestion actually begins in your mouth. Properly chewing your food begins the mechanical process of breaking the bonds that hold the proteins and complex carbohydrates together. Enzymes in your saliva catalyze the further breakdown of carbohydrates. The churning of the stomach and release of hydrochloric acid further breaks down the bonds that hold our food together so that by the time it (now called chyme) gets to your duodenum, it is ready to be picked apart so the body can conserve valuable nutrients and eliminate waste.

Improper digestion can appear as a myriad of symptoms including, but not limited to:

1. Bloating
2. Gas
3. Abnormal bowel movements
4. Systemic inflammation
5. Food sensitivities
6. Chronic joint pain
7. Eczema
8. Muscle aches
9. Chronic fatigue
10. Headaches



This whole process is highly coordinated and each step in the digestive process prepares the body for the next step. A few examples are:

1. The taste of bitter on the tongue stimulates the release of a hormone in the stomach called gastrin. Gastrin stimulates the release of acid in the stomach and prepares it for digestion of protein. (It is theorized that this reflex evolved as a self-protective mechanism because bitter foods in the wild tended to have a higher likelihood of being poisonous. It was advantageous to have the stomach acid to mitigate a poisonous effect.)
2. The taste of sweets on the tongue provides sensory information that stimulates the pancreas to release insulin before blood glucose levels begin to rise. This helps prepare the body and keep blood sugar more stable.
3. Stretch receptors in the stomach, when stimulated, cause an increase in motility of the colon. Termed the "gastrocolic reflex," this reflex encourages the emptying of the colon in preparation for the food in the stomach. (Every new parent inadvertently knows about this reflex. Just think about the sheer number of diaper blow-outs that occurred right after your baby was done eating!)
4. We need food and water to survive. However, think about the risk we take every time we put something into our mouth. We are permitting something from the outside world to enter our body. Some of our sensory cues keep us from eating foods that could be harmful to us. Bad smelling, rotten food never seems appetizing. Oddly colored foods, like the indigo and blue family, do not exist much in nature (besides berries ... which we have learned to be cautious of in the wild!). Dr. Seuss said it best, "I do not like green eggs and ham. I do not like them, Sam-I-Am." There's a lot of truth in this statement...eggs and ham are not supposed to be green!

Gastronomical Hazards

Our body's first line of defense is the cells that line our digestive tract. These cells, called epithelial cells, provide a strong barrier against anything crossing into the bloodstream that our body doesn't want there. Proteins cement these cells together; this is like building an impenetrable wall.

Our immune system makes up another one of our body's defenses against outside invaders. It's like an army that stands guard, ready to attack at the first sign of a foreign invader. With the thousands of viruses and bacteria we are exposed to in our world, we would not last a day without our immune system. Because of this risk, approximately 80% of our immune system surrounds the gut. It just makes sense to put the greatest number of guards around one of the most vulnerable areas in the body.

Where Our Gut Goes Wrong...

The foods we eat can bring outside "invaders" into our body. It is up to our immune system to fight them. In a perfect world, our digestion would roll along and we would have no problems breaking down food and extracting the nutrients we need. Unfortunately, we don't live in a perfect world. We live in a world riddled with pro-inflammatory foods (like sugar, wheat, and GMO grains) that are laced with preservatives and chemicals that all work collectively to tear up our digestive system.

Over time, these foods and chemicals chip away at our epithelial barrier and the proteins that hold those cells together. This leads to intestinal permeability, otherwise known as "leaky gut." The result is that large compounds of undigested proteins penetrate our

How Your Gut Affects Your Immune System continues on page 5...

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protective barrier and are not recognized by our immune system. So the underlying immune system in the gut attacks and flags these proteins as "invaders." This begins a vicious cycle of intestinal inflammation and permeability.

Unfortunately, the story doesn't end there. Once our epithelial barrier has been penetrated and an inflammatory cycle has begun, our gut immune system gets up-regulated and it can cause an explosion of intestinal inflammatory cytokines to be released into circulation. These inflammatory cytokines have been known to activate immune cells in the brain, joints, blood vessels, heart, and many other tissues. This is the connection between eating certain foods and exacerbation of symptoms such as joint pain, headaches, brain fog, fatigue etc. However, one of the most sinister plot twists in this story is the fact that the dysregulation of our gut immune system over time can lead to an overactive immune response and eventually the body cannot recognize self from not-self and autoimmunity develops.

Sources of Leaky Gut:

1. Diet: gluten (wheat), casein (dairy), excess alcohol, excess sugar
2. Stress: increased cortisol
3. Infections: yeast (Candida), bacterial overgrowth, viral infection, parasite infection
4. Medications: antibiotics, acid blockers, corticosteroids
5. Hormones: decreased thyroid, decreased progesterone, decrease testosterone
6. Preservatives: MSG, food dyes, BHA/BHT
7. Nutrient Deficiencies

Self or Not Self?... Autoimmunity

As mentioned above, the immune system plays a critical role in defending our body against outside invaders. It is an incredibly complex system. New research is constantly revealing insights into how it functions. This is necessary because autoimmunity is a growing epidemic in our world today. As explained above, the gut plays a significant role in the development and management of autoimmune conditions.

Many diseases have an autoimmune component including: rheumatoid arthritis, celiac disease, type 1 diabetes, lupus, Hashimoto's thyroiditis, Graves' disease, and more. It is the immune system's inability to recognize what is part of the body and what is not. The immune system ends up attacking the body's own tissue.



One quality of our immune system that makes it so effective is its ability to adapt to the outside environment. When exposed to new pathogens, the immune system has two major responses: the T-helper 1 (TH1) response and the T-helper 2 (TH2) response. These responses each activate different cells to fight pathogens in different ways. TH1 cells release macrophages, which are Pac Man-like cells that gobble up pathogens, isolate and then destroy them. TH2 cells mainly defend against extracellular pathogens. They stimulate the production of antibodies such as IgE and IgG that

bind to mast cells, basophils, and eosinophils. This helps stimulate the body to rid itself of the microbe through coughing, sneezing, or diarrhea. Typically, in autoimmunity the balance of this system is thrown off and the body shifts to a TH1 or TH2 dominant state. To provide a check-and-balance in the body, we also have T-helper 3 (TH3) cells, otherwise known as regulatory cells. These cells down-regulate the immune system and maintain tolerance to self.

The key with the immune system is BALANCE. We need an immune response to protect us from invading pathogens, yet we need to keep the immune system in check so that it doesn't attack our own cells. The good news is there are many ways you can help promote balance and support for the immune system:

1. Vitamin D—supports the regulatory TH3 cells and helps maintain balance
2. Glutathione—also supports regulatory TH3 cells and helps maintain balance.
3. Turmeric (curcumin)—balances TH17 cells (which can also contribute to autoimmunity) and nuclear factor kappa-B (NF-kB) Which controls the expression of genes that encode for pro-inflammatory cells.
4. Resveratrol—also helps to balance TH17 and NF-kB.
5. Repair the gut barrier—L-glutamine, probiotics, slippery elm, marshmallow extract, and digestive enzymes.

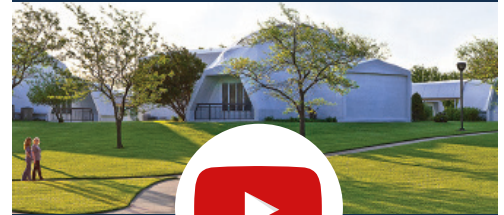
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Jeff Evilsizor M.C., PA-C

Jeff Evilsizor M.C., PA-C grew up in rural Michigan. Along with his three brothers, he often found himself in lakes, streams, woods, and in the large family garden. He now values food fresh from the earth, physical activity, sweat, and community.

Jeff attended Wheaton College outside of Chicago and completed a Bachelor of Science in Biology in 1985. After graduation he focused his next years on service, concentrating on community health in international and underserved communities both in Honduras and the inner city of Phoenix. Social and environmental contributors to wellness and disease became apparent during this time.

Interest in mental health and the greater financial responsibilities associated with marriage led him to complete a Masters in Counseling from the University of Phoenix in 1995. He was able to work with families of youth involved in the juvenile court system. He became convinced that wellness improves as mental, emotional, and relational issues are appropriately addressed.

At age 36, with a young family of three daughters, he had the opportunity to again further his education and pursue a lifelong interest in understanding the human body. In 2000, he graduated from Midwestern University with a Bachelor of Science in Physician Assistant Studies. His subsequent experiences as a physician assistant in various settings (including family practice, pediatrics, emergency medicine, and addiction medicine) further confirmed that wellness is multifactorial and multi-dimensional.

More recently, Jeff began to explore integrative approaches. This came after observing conventional medical practices that failed to provide significant benefit to patients with chronic conditions. He moved to Kansas City in 2013 and was able to learn and practice integrative medicine under Dr. Jeanne Drisko at KU Integrative Medicine. He joined Riordan Clinic in 2016 to continue to apply the nutritional, functional, and integrative approaches to support health.

He is grateful for his wife Tracy, and proud of the life trajectory of his daughters. When not at the clinic, he will most likely be outside focused on increasing edible production on his hobby farm, hiking, or connecting with family and friends.



Tim Lawton, M.D.

Dr. Tim Lawton earned his undergraduate degree in Biomedical Engineering from Northwestern University in 1990 and his Medical Doctorate from the University of Iowa in 1994. He completed his Family Medicine Residency at MacNeal Hospital in Berwyn, Illinois and came to Wichita in 1997 to start his first practice. It soon became clear that a significant number of medical conditions could be prevented or treated through nutrition. In 2002 Dr. Hugh Riordan invited him to join the Riordan Clinic where he worked with Drs. Riordan and Hunninghake through 2004.

Since then Dr. Lawton has had the opportunity to earn a Masters Degree in Human Nutrition from the University of Bridgeport (2009). He has focused on serving the needs of rural Kansans by providing medical care throughout the state in underserved communities through Docs Who Care. He has taken his medical experience and passion for helping others overseas to Kenya, Zambia, Haiti and beyond.

Dr. Lawton loves teaching and has served as a Clinical Instructor for the University of Kansas School of Medicine. He has appeared on television and radio and loves presenting lectures to audiences of all kinds. Most of all, he enjoys spending time with patient/co-learners, addressing their health concerns and encouraging them to live healthier lives in harmony with nature's design.

Dr. Lawton is a long-time member of the Christian Medical and Dental Association and served as its student body president while in medical school. He is Board-Certified and a Fellow of the American Academy of Family Medicine.

Dr. Lawton is passionate about his family. He and his wife have been married 25 years and have been blessed with four wonderful children. He loves all kinds of outdoor recreation, running, hiking, biking, camping, sailing and gardening.

He is excited to be returning to the Riordan Clinic and working with a most talented and energetic 'Real Health' team! With over 20 years in family medicine and ten years in rural ER, he understands how to bridge the distance between conventional and complementary medicine, and combine the best of both worlds.



Call 316.927.4765 to schedule an appointment.