



Riordan
Clinic

Health Hunters

April
2017

Vol. 31
No. 4



Inside this Issue

How to Avoid Sugar	1-3
Bulletproof Coffee	4
Bulletproof Coffee Recipe	5
Upcoming Events	5
Prolozone: For Resolving Chronic Pain Patterns and Regenerating Damaged Tissues	6-7
12 Months to a Healthier You!	8



Riordan Clinic is a not-for-profit 501(c)(3), nutrition-based health facility in Wichita, Kansas cofounded in 1975 by Olive W. Garvey and Hugh D. Riordan. 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."

How to Avoid Sugar

If you had read the title of this article to our ancestors 10,000 years ago, you would have sounded crazy. Avoid sugar? Our ancestors' survival was dependent upon finding energy (food) and, in nature, sugar is the best source of quick energy. This is why sugar tastes so good to us. It is genetically programmed in our brains to signal pleasure and reward. In fact, our brains run on sugar (glucose) for energy. Our brains use about 20% of our daily energy intake, despite the fact that the brain comprises only 2% of our body's weight.

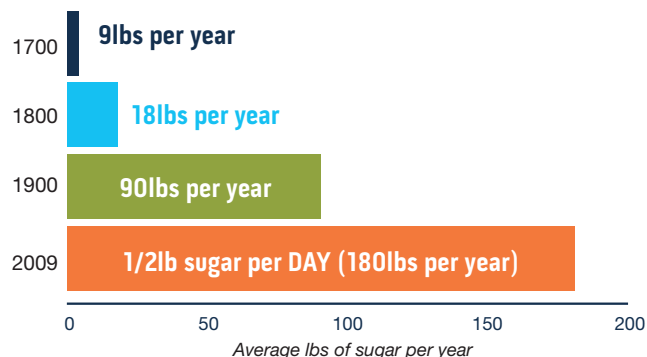
As with any substance, a little bit can be good, but too much can be toxic. Water is necessary for our survival, but you can overconsume it or "hyperhydrate" and throw your electrolytes out of balance enough to cause death. Sugar is the same way. Our bodies are dependent upon glucose for survival. However, overconsumption of sugar has been implicated in many of the chronic diseases of modern living that we see today.



AUTHOR

Anne Zauderer, DC

AVERAGE SUGAR CONSUMPTION BY YEAR



Overconsumption

We are a nation that is addicted to sugar. As mentioned above, we have a biological need and desire for sugar. As our society has become more modernized, sugar is more available and therefore we consume more.

The graph to the left shows that we have more than doubled our average sugar consumption in the past 100 years. These statistics are astonishing! We are literally eating our body weight in sugar every year. Most people are aware of the health hazards of consuming too much sugar, so why do we continue to do it? Are we just slaves to our primal desire for sugar? I don't think that's the whole story.

Hormones

Our more distant ancestors, because they did not have the modern conveniences we have today, spent a lot of time and energy hunting and foraging for food. Their survival was

Continued on page 2

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dependent on the available food. This pattern of “feast and famine” helped shape our biochemistry. Food was a communication between the environment and the physiology of humans. The availability of food (energy) would dictate certain hormonal responses in the body.

For instance, our fat cells release a hormone called **leptin**, which is the signal to the body that we have adequate storage of energy (or fat). When leptin is released, that suppresses our appetite. If we have adequate storage, there's no need to eat more. **Ghrelin** is the opposite of leptin, it signals us to tell us when we are hungry. Too much ghrelin can lead to over-eating.

These hormones don't just affect our hunger, they also have systemic effects because, as mentioned above, the availability of food was essential for our ancestors. Leptin also has an effect on our reproductive and thyroid hormones. If body fat drops below a certain percentage and leptin is not released, that signals the body to downregulate reproductive hormone production. (This is the reason why women who are very lean and athletic very often don't have a menstrual cycle.) If our ancestors did not have availability of food, that was not a good time to reproduce.¹ In addition, when leptin levels are low, this signals the thyroid to slow down² because when food is not available, this is not a good time to be metabolically active.

However, in the modern world, we have a different kind of leptin problem. We are over-consuming sugar (especially fructose) at such high levels that we are developing leptin-resistance. This is similar to insulin resistance, and in fact the two seem to share signaling pathways and, therefore, go hand-in-hand. This means that we are releasing so much leptin that our brains stop listening to it. So we end up with all of the effects of low leptin: low thyroid function and metabolism, low production of reproductive hormones, decreased energy, and increased fat storage; yet, we are still consuming more calories than our bodies can use. There is no decrease in hunger and no increase in metabolism, which leads to feelings of starvation and increased appetite. A vicious cycle ensues:

1. You eat more (especially sugar), gain body fat.
2. More body fat means increased leptin release from fat cells.
3. Too much fat means that proper leptin signaling is disrupted (leptin-resistance).
4. Your brain thinks you are starving, which makes you want to eat more.
5. You gain more fat and get hungrier.
6. Your thyroid starts to down-regulate (hypothyroidism) and you feel tired, you eat more and gain more fat.
7. The cycle continues.

A very important piece to this puzzle is a type of sugar called **fructose**. **Fructose has been shown to induce leptin resistance³ and does not suppress ghrelin.** Therefore, fructose is a major contributor to the cycle of obesity. Why is this significant? Since prior to World War II, we have more than tripled the amount of fructose we are consuming.

Fructose vs. Glucose

Fructose and glucose are both simple sugars, also known as monosaccharides. Even though they are both sugars, they are metabolized by the body very differently. Whereas glucose can be readily absorbed for energy, fructose has to be broken down by the liver. Only about 25% of the fructose you eat can be used as energy (in the liver), the other 75% is stored as fat. Therefore, metabolically, the purpose of eating fructose is for fat storage. Again, going back to our ancestors, this makes sense. They primarily consumed fructose during the season when fruits were ripening. This allowed them to store up energy (as fat) for the winter.

This is a pretty brilliant design by the body to protect us from starvation. However, this system was designed for sugars that existed in whole foods, such as fruits. Whole foods contain fiber and nutrients that help us process the sugars in them. In the modern diet we have stripped away all of the fiber and refined sugars down to a form that is more quickly and easily absorbed by the body. Because of this delivery system, we are able to consume a greater quantity of sugar in one sitting.



Reasons to Avoid Fructose:

1. Fructose is seven times more likely to form Advanced Glycation End Products, contributing to heart disease.
2. Fructose does not suppress ghrelin (*hormone that increases appetite*).
3. Fructose does not stimulate leptin (*hormone that decreases appetite*).
4. Acute fructose does not stimulate insulin because there are no transporter receptors on beta cells in the pancreas that make insulin.
5. Metabolism of fructose in the liver is different from glucose, which can lead to stress on the liver and fatty liver disease.
6. Fructose promotes metabolic syndrome, which includes:
 - Lipid dysregulation
 - Type II diabetes
 - Obesity
 - Hypertension
 - Cardiovascular disease

How to Avoid Sugar

To break the hormonal cycle described above, we have to eliminate processed sugar and processed foods from our diet as much as we can. Go on a 60-day “sugar fast” and avoid all added sugar. Some of the biggest culprits for over-consumption of sugar are: soda, sports drinks, desserts, and convenience foods. We know we should avoid most of these foods. However, there is also a lot of hidden sugar in foods that we wouldn’t necessarily think to avoid, and these foods really add to our daily sugar intake. Some of these foods to watch out for are: peanut butter, tomato sauces, yogurt, granola bars, protein bars, coffee drinks, juices, dried fruits, condiments (ketchup, BBQ sauce, salad dressing), and certain alcoholic beverages.

Eliminating sugar (especially fructose) is the best first step. Here are a few other strategies to help reset leptin resistance:



1

Increase consumption of healthy fats (avocados, coconut oil, MCT oil, nuts and seeds, grass-fed meat and eggs). This also includes adding a supplement of Omega 3 fatty acids.



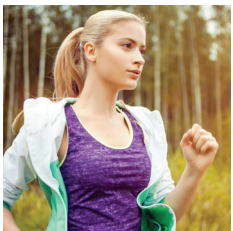
2

Limit carbohydrate consumption in the morning and afternoon (our body is more insulin-sensitive after 3:00pm).



3

Manage stress levels (good quality sleep, exercise and movement).



4

Utilize intermittent fasting.



5

Avoid toxins in cosmetics, cleaning products, water, air and food.

For more information, join Dr. Anne for a lunchtime lecture at the Riordan Clinic, Wichita campus, on **WEDNESDAY, APRIL 19TH AT NOON**, where she discusses, in more detail, the effects of sugar in the diet and how it connects to many modern, chronic diseases.

RSVP by calling 316-682-3100 or by emailing reservations@riordanclinic.org.

For reference information, please visit: <https://riordanclinic.org/2017/03/how-to-avoid-sugar/>

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Bulletproof Coffee

Have you heard about the recent trend of putting butter in your coffee? Does that sound crazy, or just a little bit delicious? Bulletproof Coffee is a recipe that combines grass-fed butter with medium-chain triglyceride (MCT) oil in your coffee to make a delicious, latte-like drink that is good for your body and brain. The benefits of this drink are:

1. **Improves brain function**
2. **Boosts energy**
3. **Promotes weight loss**
4. **Increases focus and attention**



Why grass-fed butter

Cows evolved to eat grass, not factory farm lot feed. You may notice grass-fed/grass-finished butter is a bright yellow color in comparison to an almost white appearance in butter obtained from grain-fed/factory-farmed butter. Grass-fed/grass-finished butter contains higher concentrations of omega-3 fatty acids, CLA, beta-carotene, vitamin A, vitamin K, vitamin D, vitamin E and anti-oxidants. It also contains high amounts of butyrate that has been shown to both prevent and decrease inflammation, protect against mental illness, improve body composition, increase metabolism and improve gut health.

What is Brain Octane?

Brain Octane Oil is a medium-chain triglyceride (MCT) oil. The carbon tail of MCTs varies in length from C-6 to C-12. The smaller the carbon tail the more easily it is absorbed by your body and converted into ketones, molecules that can fuel your brain in place of glucose. Brain Octane is pure C-8. It is tasteless and odorless unlike C-6 MCTs. It contains 18 times the amount of C-8 in coconut oil and can still be quickly converted to energy.

Brain Octane is converted to ATP (fuel for your body and brain) in just 3 short steps, whereas sugar is converted in 25! It completely bypasses liver processing, making energy rapidly available to the brain, unlike long-chain fatty acids. It is a key part of Bulletproof Intermittent Fasting, helping to boost your metabolism, burn fat, improve cognition, build muscle and prevent the reduction in fat-digesting enzymes caused by low-fat diets.

How to avoid coffee that is a delivery system for mold

Mycotoxins are in almost all low quality brands of coffee, so choose your coffee carefully. It is especially important to avoid “blends” of coffee as they mix cheap beans from multiple areas, almost guaranteeing that it will contain mold.

Decaf coffee is even worse, as caffeine is a natural anti-insect and antifungal defense mechanism for the plant. It deters mold and other organisms from growing while the beans are in storage. When you strip the caffeine from the bean, you are making it a more susceptible host.

It is also important to avoid beans prepared by the “natural process method” and the “wet process” as this involves the beans sitting outside for an extended period of time exposing them to bird feces, or in vats of water resulting in unpredictable bacteria growth.

Upgraded Coffee

The wrong coffee can sap your energy and cause sugar cravings, leaving you feeling lethargic and irritable. Bulletproof coffee is “upgraded coffee” containing unsalted grass-fed butter, and Brain Octane. It not only keeps you energized and focused, but it keeps you full for hours, supporting ketosis. It is from high-elevation, Rainforest Alliance certified, single-origin coffee estates in Guatemala and Columbia.

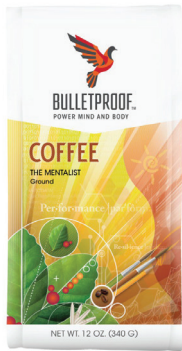
In conclusion

Most of our bodies are so starved for healthy fats that it will take a week or two to fully turn on the fat digestion system when you switch to a breakfast high in healthy fat such as Bulletproof Coffee. If your coffee is too rich, try decreasing the amount of butter you use initially and gradually increase it to the amount you like. Taking a digestive enzyme supplement may also help. If you must add sweetener try using xylitol, erythritol, or stevia.

Starting your day with Bulletproof Coffee will give your body the healthy fats you need to make cell walls and hormones while optimizing your cholesterol levels. Experience the boundless energy and focus obtained by intermittent fasting and ketosis for yourself, finding your way to well!

How to make bulletproof coffee

<https://riordanclinic.org/2017/03/bulletproof-coffee>



\$18.95 The Mentalist Dark
Roast Ground
Coffee 12oz

1

Brew **1 CUP** of organic, mold-free coffee using filtered water

2

Add in **1-2 TEASPOONS** of Brain Octane Oil **OR** **1-2 TABLESPOONS** of coconut oil



\$23.95 Brain Octane
Oil 16oz

3

Add **1-2 TABLESPOONS** of grass-fed, unsalted butter



4

Mix (preferably in a blender) for 20 seconds to make a frothy, latte-like drink. **ENJOY YOUR UPGRADED MORNING COFFEE!**



BONUS:

Enhance your Bulletproof Coffee even more! Add a **SCOOP OF COLLAGEN PROTEIN POWDER** before blending to boost metabolism, improve energy and speed up healing.



\$39.95 Collagen Protein
Powder 16oz

Get all the ingredients you need to make your own Bulletproof Coffee at the Riordan Clinic Nutrient Store!

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Upcoming Events



Food as Medicine

A foundational nutrition course

FREE

April 5th - 11:30am – 1:30pm

Monthly Class

This in-depth course will address some fundamental questions behind how our diet impacts our health and well-being and how it contributes to the progression of chronic disease.

PLEASE NOTE: This course is available in-person and online. For more information on how to watch online, please see: riordanclinic.org/food-as-medicine

April 19th - Noon – 1:00pm

FREE* Luncheon Lecture

Is Sugar Bad for Us? The Answer May Surprise You!

Join us at the Riordan Clinic, Wichita campus, to discuss with Dr. Anne Zauderer the effects of sugar in the diet and how it connects to many modern chronic diseases. Reservations can be made by calling 316-682-3100 or emailing: reservations@riordanclinic.org.



**Light refreshments will be served*

April 30 - 6:00pm - 7:30pm

Crystal Bowl Meditation

Cost: \$25

To register, please visit

retreattojoy.com

Thursdays, May 4th, 11th, & 18th

5:30 - 6:30pm

21-Day Detox, Group Program

Dr. Anne will lead a group class discussing the proper way to do a detox program while also discussing important topics related to avoiding toxins in our environment. Space is limited. The class is \$39. For more information please call 316-682-3100.

Contact the Editor

Please send any comments or suggestions to

newseditor@riordanclinic.org.

Thank you for reading,



Dr. Anne Zauderer
Editor

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Prolozone: For Resolving Chronic Pain Patterns and Regenerating Damaged Tissues



AUTHOR

Jeff Evilsizor, M.C., PA-C



As a physician assistant I encounter many who are experiencing pain. Joints that once functioned silently begin to complain with any movement. Activities that once were of interest now provoke discomfort. Pain disrupts sleep. The unwanted presence becomes a mental and an emotional drain that sets in motion a downward health spiral. Pain is calling attention to something that is out of balance or that is in disrepair.

In the traditional world of medicine, the typical options for pain are pain killers, steroid injections, or surgery. As with most of medicine, I see mixed results. Some individuals have good outcomes with surgery, and some wish they had never undergone surgery. Some get temporary relief from steroid shots and some have joints that are weakened with actual damage from the repeated steroid exposure. Some come to peace with the use of daily pain medication without any noticeable

side effects. Through the medication, they experience an adequate level of temporary relief. Still others experience negative side effects from the medication and inadequate relief, and many face uncontrolled pain or increasing pain simultaneously with dependence on increasing doses of pain medication.

Let's talk about another option called Prolozone. Prolozone is an alternative medical intervention when there is pain. It is a non-surgical injection based treatment that can resolve chronic pain patterns and can regenerate damaged tissue. Prolozone can alleviate pain through stimulating the body's own healing processes. Looking at the word itself, prolozone is derived from "proli," which means to regenerate or rebuild. Think of "prolo" as short for proliferation. "Ozone" in

prolozone is a chemical substance composed of oxygen atoms. It is a molecule consisting of 3 atoms of oxygen, whereas the oxygen that we typically breathe has only 2 atoms of oxygen.

Focusing on ozone, you can think of it as a supercharged, highly unstable oxygen compound. Basically, it is a molecule of oxygen with excess energy. Ozone's unstable nature is what makes it so powerful and stimulating within the body. It is colorless and has a distinct acrid

**FROM MY OWN EXPERIENCE
ADMINISTERING
PROLOZONE INJECTIONS,
AND CONSISTENTLY SEEING
PATIENT IMPROVEMENT,
I AM A STRONG PROPONENT
OF PROLOZONE AS A
SUPPORT TO HEALING.**

odor. In fact the word ozone itself comes from the Greek ozein (odorant), descriptive of this property. Ozone has a short half-life due to its highly unstable nature. It is a powerful sterilizer, used to destroy bacteria, viruses, and odor. Ozone as a gas is able to diffuse easily, spreading throughout the surrounding tissue.

Prolozone, used in conditions of pain or inflammation, involves injecting a combination of numbing medication, B-vitamins, and ozone into the affected area. It can be injected in a joint space (i.e knee, shoulder, or facet joint) or directly into inflamed tendons or tissue areas. Most are familiar with numbing medication and B-vitamins and how they may be beneficial. What about ozone? How does it work and what does it do to benefit the body? To give a context for how ozone helps, it is important to understand oxygen utilization and how oxygen is important in the body. Oxygen is needed for the efficient production of energy. Energy is used for healing and tissue regeneration. The importance of oxygen is seen when lungs cannot deliver oxygen to the body and when there is impaired circulation. Oxygen is not getting to those tissue areas. Interestingly enough, ligaments and joints are areas of relative decreased circulation.

A simple way to understand ozone's benefits is to think of increasing oxygen to an area that needs oxygen. Prolozone improves cellular oxygen utilization through increasing oxygen delivery and reducing oxidative stress. The technical pathway of increasing oxygen to the tissue is through stimulating the biphosphoglycerate cycle and shifting oxyhemoglobin dissociation curve to the right.

Another way that ozone is beneficial is as a disinfectant. Ozone disinfects through inactivation of bacteria, viruses, fungi, yeast, and protozoa. Sometimes infection is the underlying etiology of joint pain and arthritic conditions. Prolozone stimulates tissue regeneration, reduces inflammation, and increases anti-oxidant enzymes. With respect to the regeneration of tissue, it stimulates the production and release of cellular growth factors, such as transforming growth factor beta (TGF-B). The activation of membrane receptors and the increase of cytokines trigger tissue growth. The stimulation and increase of oxygen utilization results in a myriad of effects. These beneficial effects include tissue regeneration, the repair and

tightening of lax structures, and the healing of torn connective tissue and ligaments.

Conditions responsive to Prolozone

- Carpal tunnel syndrome
- Chronic back pain
- Chronic neck pain
- Degenerated discs
- Degenerative & arthritic ankles
- Degenerative & arthritic hips
- Degenerative & arthritic knees
- Dental infections
- Heel spurs
- Neuromas
- Non-union fractures
- Painful scars
- Pelvic disorders
- Plantar fasciitis
- Post-op pain
- Rotator cuff injuries
- Sciatica
- Sinus infections
- Sports injuries
- Tennis elbow
- TMJ

Two current leaders in re-popularizing the use of ozone in the United States are Dr. Frank Shallenberger, MD, HMD, ABAAM and Dr. Robert Rowen, MD. A publication by Dr. Shallenberger that goes into more extensive description of Prolozone use can be found at journalofprolotherapy.com/prolozone-regenerating-joints-and-eliminating-pain. In the table to the left he lists conditions that commonly respond to Prolozone injections.

Ozone's use in medicine is not new. There is a publication entitled "Ozone," referenced as early as 1855 by the Florida Medical Association authored by Dr. Charles Kenworthy. In 1929, Ozone and Its Therapeutic Action, co-authored by many heads of American hospitals, lists over 100 diseases and their treatment using ozone. Ozone was used routinely in World War One in treating infections of wounded warriors. Currently there are reported to be over 7,000 physicians in Europe delivering ozone therapy safely and effectively.

From my own experience administering Prolozone injections, and consistently seeing patient improvement, I am a strong proponent of Prolozone as a support to healing. It is very satisfying to have someone suffering with pain return with improved symptoms or resolution of their pain issues after a few injections. While convinced of the benefits of ozone, I am also careful to explore whether there are other underlying health issues, not yet identified or not yet addressed. Prolozone should be thought of as an adjunctive therapy supporting the body's own healing processes. Therefore, everything

else that Riordan Clinic promotes as foundational to health (nutrition, gut health, detoxification, hormone balancing, stress management, sleep, relational health etc.), should be considered. The greater the body's healing capacity, the greater the benefit from Prolozone. Since everyone has some residual capacity to heal, that makes Prolozone a powerful tool for encouraging healing and for the resolution of pain.

INTERESTED IN TREATING YOUR CHRONIC PAIN WITH PROLOZONE THERAPY?

GIVE US A CALL AT 316-682-3100 TO LEARN MORE OR SCHEDULE AN APPOINTMENT.

12 Months to a Healthier You!

Month 4: Avoid the Standard American Diet (SAD)

It's true. Most people have a SAD diet these days. The Standard American Diet, or SAD, is high in meat, dairy, sugar, poor quality fats, highly refined grains and processed foods. Most of us have been raised in a world where this is considered "normal." One recent study¹ found that nearly 60% of Americans' daily calories come from "ultraprocessed" food. The researchers defined this as food that contains artificial flavors, colors, sweeteners, hydrogenated oils, emulsifiers and any other additive that can't be found in the average person's home kitchen. All of these ingredients are added to reduce cost and increase consumption. However, our diets didn't always look like this.

100 years ago, there were very few processed foods in the American diet. Most meals were made from scratch. However, a shift in the American diet started to occur as big businesses got involved. They figured out that they could sell more food if they made it better tasting, more convenient, less expensive, and easily accessible. How did they achieve this? By transforming food as it was known.

These are some of the ways our food has been transformed and why:

- **Increased use of high fructose corn syrup** because it is half the cost cane sugar and has a greater relative sweetness (causing us to want more of it).
- **Less fiber in our diets** because fiber is not very shelf-stable and

does not freeze well. The average person used to eat 200-300 grams of fiber per day. Today, the average is 12 grams per day.

- **Increased use of hydrogenated oils** because they are cheaper and more shelf-stable. Consumption of these trans fats increases our risk of cardiovascular disease.²
- **Increased use of chemical additives and preservatives.** These make foods more shelf-stable. Some examples: BHA/BHT, sodium nitrate ("nitrates"), sodium benzoate, sulfur dioxide ("sulfites").
- **Increased availability of heavily sweetened foods.** For example: in some places it is less expensive to buy a soda or sports drink than it is to buy water.

How do we avoid a SAD diet? The answer is easier than you think! Just eat real food. You can find all of the real food if you shop the perimeter of a grocery store. Look for fresh vegetables, grass-finished meat, nuts, seeds, legumes and whole grains. Preparing meals from scratch takes more planning, but you will spend less (compared to eating out) and give yourself nutrient-dense foods that will fuel your body rather than deplete it.



AUTHOR

Anne Zauderer, DC

I want to hear from you on how your results are going with the monthly challenge!

Email me at newseditor@riordanclinic.org to let me know about your progress, and to get your name entered in our monthly random giveaways for those participating in the challenge.

1. Martínez Steele E, Baraldi LG, Louzada MLDC, et al. Ultra-processed foods and added sugars in the US diet: evidence from a nationally representative cross-sectional study *BMJ Open* 2016;6:e009892. doi: 10.1136/bmjopen-2015-009892

2. Iqbal MP. Trans fatty acids – A risk factor for cardiovascular disease. *Pakistan Journal of Medical Sciences*. 2014;30(1):194-197. doi:10.12669/pjms.301.4525.

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