



Riordan  
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Riordan Clinic is a world-renowned, academic medical center that has led the world in integrative oncology and complex chronic illness care since 1975. The Riordan Clinic was established as a 501 (c)(3) non-profit organization with missions in research, provider education, and patient education. The Health Hunter Newsletter has been published since 1986 as an educational resource to providers and patients.

# WATER



## The Master Metabolic Nutrient



AUTHOR

Jess Higgins-Kelley

In the field of oncology nutrition therapy, a lot of time is spent researching (and debating) about macronutrients: carbohydrates, protein, and fat. How much? What kind? In the past ten years we've also started hearing more about the mighty micronutrients: vitamins and minerals. Vitamin D, for example, is key for immune function. Potassium is just the ticket for leg cramps. But in the fifteen years I've been practicing, teaching, writing, and researching about nutrition, the foundational nutrient I always focus on first is water. Why? Because there are no other nutrients required in the amount or in the frequency that water is. You can only live for a few days without it. Conversely, we can live without carbohydrates forever, they are not essential. Meanwhile H<sub>2</sub>O is mandatory for millions of daily metabolic functions – it is the admiral nutrient of metabolic health. Health alert: most of us are not drinking enough of it.

An estimated seventy-five percent of Americans are chronically dehydrated. Becoming dehydrated happens

quickly. As little as a two-percent loss in hydration status can result in various impairments – and we lose an estimated half-ounce of water per hour just by breathing (respiration) during sleep! Early onset symptoms of dehydration appear within 48-hours and include: fatigue, cravings, headache, constipation, hunger, and cognitive impairment. According to a 2021 review paper in the journal *Annals of Nutrition and Metabolism*, titled, "A Journey through the Early Evidence Linking Hydration to Metabolic Health," the long term effects of chronic dehydration can increase the risk of certain metabolic conditions including Type 2 diabetes, cardiovascular disease, cancer, and Alzheimer's disease. The mechanism here is that dehydration reduces the function of mitochondria. Mitochondria produce the energy molecules we require to function by using the two hydrogen molecules found in water. Low water equals low energy which is why fatigue is so common in dehydration. What's more, is that in a dehydrated state there is not enough water to transport mitochondria damaging and cancer-causing toxins away from the cell. The solution to pollution is dilution, I've always said.

How much water have you had today?  
The most common answer: not enough.

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# WATER Continued.

**This is one of the first questions every clinician should be asking their patients. Over the years, we have observed that the more chronically ill a person is, the more dehydrated they are.** The good news is that getting properly hydrated is the most simple, cost effective, and potent metabolic nutrition intervention you can do. And you can start right now. The benefits of becoming properly hydrated are felt fairly soon, from improved mental clarity, improved digestion, increased energy, and weight loss. Yes, simply drinking more water can help you lose weight. In fact, one study that appeared in the Journal of Clinical Endocrinology & Metabolism found that drinking 500 ml of water increased metabolic rate by 30-percent within ten minutes.

Past guidelines issued by the National Academies of Science and Medicine stated that sedentary adult females require around 90-ounces of water a day and adult males require around 125-ounces in order to be properly hydrated. That's a lot of water. Hydration requirements also increase with exercise, vomiting, or diarrhea. So, the first intervention strategy to employ here is this: get a special ceramic cup, glass, or bottle. A water bottle that you enjoy looking at, know how much water it holds, and motivates you to bring it around with you. Your water receptacle now becomes a compulsory daily companion, like a purse or small dog. It is not disposable - plastic water bottles contain harmful, endocrine disrupting chemicals. Get glass or stainless steel. Then... drink water... all day long. At home, I personally use a 30-ounce, wide-mouth, Ball glass jar and know to fill it four times a day.

**Sidebar Tip:** After your body adjusts to more water intake the frequency of urination will decrease. For nighttime urination issues, stop drinking water after sunset. When your body metabolically adapts to the increased amounts of water and electrolytes (sodium, potassium, magnesium, etc.) urination frequency typically will normalize so don't let increased urination stop you from drinking more water!

Once we get enough water coming into the system, the second question practitioners need to be asking their patient population is: "What is your water source?" The majority of people on earth get their water from public drinking (tap) water, well water, or bottled water. Eighty-six percent of the U.S. population relies on a public utility company to provide, test, and maintain their water supply. The other fourteen percent of Americans have a private well. Further, estimates now are that one in five people are getting their water from within a bottle or can.

The modern seltzer water movement has worked wonders for those looking to decrease the amount of sugary sodas they drink, but still crave that fizz. The general census is that carbonated waters are equally as hydrating as flat water. However, the (often) inexpensive options can come with added metabolic mutators like natural and artificial flavors, zero calorie sweeteners, and

other synthetic ingredients. The quality of the seltzer water matters if you are going to drink canned or bottled water as your primary hydration source. Some brands that we are currently testing and enjoying at the Oncology Nutrition Institute are Ghia, Dram, and Sanzo (no affiliate relationships). Of course the plain, sparkling mineral waters in glass bottles offered by companies like S.Pellegrino are going to be the best choice. One step further, various types of specialized water including deuterium depleted, structured, and hydrogen waters all gaining momentum as polypotent nutrition interventions, and if you are a bottled water drinker, considering looking into these.

If you are a tap water drinker, the quality of the water coming out of your tap depends on where you live. Several years ago, the Environmental Working Group (EWG) put out a comprehensive database where you enter your zip code and get water quality reporting provided by your local public water utility company (<https://www.ewg.org/tapwater/>). No matter what, public drinking water systems are required to treat with chlorine and fluoride, now both linked to long term endocrine and neurological effects. Thus, getting either a counter top filter (EWG recommends the Epic counter top water filter) or a whole house reverse osmosis system is one of the best investments in your health you can make.

For well water drinkers, it's worth testing your well if you have not done so in the last five years. Most public water utility companies offer home test kits at a low price, and it can become an entertaining educational project to do at home, especially with kids or grandkids. If you live in an agricultural area there is high potential for your well water to be contaminated with cancer causing pesticides or heavy metals. Good news, there are water filter companies that can filter out some of these toxic chemicals including Berkey and Clearly Filtered. A Hollywood movie based on a true-story, titled Erin Brockovich, might help illuminate the link behind water contamination and cancer.

Everyone can benefit from tuning into their hydration status and the quality of water they drink. From increased energy, to weight loss, clearer mind and skin, and improved mitochondrial function, water has always been and will remain the master metabolic nutrient. Start making drinking lots of water a pleasant habit. If you make it the only health goal you focus on this year you will be making a massive positive impact on your metabolic health. Find your favorite cup. Start learning about your water sources, read labels, and test your well water. Avoid plastic at all costs. If you have been chronically dehydrated, or are undergoing any type of cancer treatment, after three months of drinking around 100 ounces of clean water a day, you might just be amazed at how different you feel. Bottoms up!

# The Riordan Approach to the Terrain Ten: **TOXICITY**



## AUTHOR

Amber Ragland,  
Director of Marketing

The “Riordan Approach to the Terrain Ten”. is designed to offer a high level view of holistic health and wellness,

emphasizing the integral components that contribute to our overall well-being. Each month, we will spotlight one of the ten ‘terrains’ of health, providing our patients and readers with a comprehensive understanding of how each factor influences our lives and well-being.

The concept of the ‘Terrain Ten’ is rooted in the philosophy that health is not merely the absence of disease, but a state of complete physical, mental, and social well-being.

The Terrain Ten encompasses a range of factors including nutrition, hydration, sleep, exercise, stress, relationships, genetics, mental health, spirituality, and our focus for February: Toxicity. Toxicity in the human body is more than just a buzzword; it’s a significant concern in our modern world. The Riordan Clinic has long recognized the impact of environmental and internal toxins on health. This February, we will explore the theme of toxicity, shedding light on how it affects our bodies, minds, and overall health.

### Understanding Toxicity

Toxins are substances that can cause harm to our bodies. They come from various sources, including the environment, lifestyle choices, and even our own metabolic processes. Environmental toxins may include pollutants, chemicals, heavy metals, and more, found in the air we breathe, the food we eat, and the water we drink. Lifestyle toxins encompass habits like smoking, excessive alcohol consumption, and exposure to harmful substances through occupational hazards or personal care products.

According to Dr. Ron Hunninghake, MD, “The accumulation of toxins in our body can lead to a myriad of health issues. These can range from acute effects like allergies and skin reactions to long-term consequences such as chronic fatigue, hormonal imbalances, neurological disorders, and even an increased risk of cancers. Understanding the sources and impacts of these toxins is the first step towards mitigating their effects on our health.”

At the Riordan Clinic, we believe in a proactive approach to health. Detoxification, in our view, is not just about removing toxins from the body, but also about enhancing the body’s natural ability to detoxify itself. Our approach is twofold: reducing toxin



exposure and strengthening the body’s detoxification systems.

Awareness is key in reducing exposure to toxins. selecting organic foods, using natural personal care products, and creating a toxin-free environment at home and work are all sources of toxins in your daily life. Our body has built-in mechanisms for detoxification, primarily involving the liver, kidneys, lungs, and skin. Strategies to boost these natural processes are nutritional support, hydration, exercise, and stress reduction techniques.

### A Journey Through the Terrain Ten

As we move through the year, each month will bring a focus on a different aspect of the Terrain Ten. From nutrition and hydration to mental health and spirituality. We want this series to be interactive and engaging. Expect insightful articles from our experts, patient success stories, Q&A sessions, and practical guides. We also encourage you to participate by sharing your experiences.

The Riordan Approach to the Terrain Ten series reflects our commitment to holistic health and wellness. We understand that each individual is unique, and our approach is always personalized, considering the intricate interplay of various health terrains in one’s life. Thank you for being a part of our community. Your health and well-being are our top priorities, and we are here to support you every step of the way.

To learn more, or to talk to one of our New Patient Coordinators to see if the Riordan Clinic Approach to the Terrain Ten would be a viable option for you call **316-682-3100**.

# Riordan Clinic Says Good-bye to Health Hunters Editor and Content Coordinator, Melody Spurney.

Melody Spurney, a dedicated member of the Riordan Clinic team and editor of the Health Hunters newsletter, left an indelible mark through her work as the Content Marketing Coordinator. Her involvement with the Health Hunters newsletter showcased her passion for holistic health care and her exceptional journalistic skills, honed from her studies at Kansas State University. Melody's articles, noted for their clarity, depth, and engagement, covered a wide range of topics, reflecting a sincere commitment to educating and inspiring the clinic's community.

Her writing was a testament to her ability to blend informative content with a personal touch. She effectively communicated complex health topics in a manner that was both accessible and relatable. Whether it was sharing patient stories, discussing innovative health treatments, or offering nutritious recipes, Melody's work resonated deeply with readers. Her dedication to crafting informative and compassionate articles highlighted the clinic's focus on integrative and naturopathic health approaches.

Beyond her professional accomplishments, Melody's personal passions also shone through. An avid runner, she found solace and joy in running along the trails surrounding the clinic. Her initiative to establish a "Girls on the Run" chapter, although not yet realized, was a clear reflection of her commitment to empowering young girls and addressing issues such as low self-esteem.

Melody's sudden passing is a profound loss to the Riordan Clinic and the broader community. Her contributions, characterized by informative, engaging, and heartfelt writing, leave a lasting legacy that will continue to inspire. Her life stands as a reminder of the importance of living life fully, appreciating the small moments, expressing gratitude openly, and never taking any day for granted.

For further information on Melody Spurney's work and her contributions to the Health Hunters newsletter, you can visit the Riordan Clinic's website at [RiordanClinic.org](http://RiordanClinic.org).



## Food as Medicine Still Available

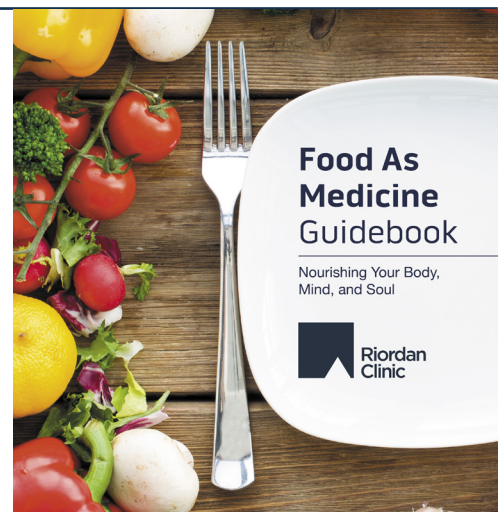
The "Food as Medicine: Nourishing Your Mind, Body, and Soul" guidebook is still available for download just in time for the New Year.

Whether you are making resolutions or simply want to make better food choices with an understanding of how food relates to overall health, this free guide is available online.

This 42-page guide covers a variety of topics, including recommendations to get started, the relationship between food and inflammation, toxins, tips for buying organic foods and understanding labels. It also includes more than a dozen recipes for breakfast, lunch, dinner, dessert, and snacks.

Link to download:

[riordanclinic.org/food-as-medicine-free-guidebook/](http://riordanclinic.org/food-as-medicine-free-guidebook/)



# 10 Toxic Minerals to Avoid



## AUTHOR

Charles Hinshaw, MD  
Laboratory Director

Many minerals are an essential part of a healthy diet. Some minerals are toxic, even in micro-amounts. They are formed by combinations of various elements. In this article you will learn, or be reminded, of the differences between minerals and elements, where the word mineral comes from, various toxic minerals and the dangers associated with each. We will also take a virtual “Grand Tour” of where the 10 most toxic minerals are likely to be encountered, what action to take if encountered, diagnostic symptoms, tests, and potential medications available for treatment.

In the late 14c the word ‘mineral’ (from Medieval Latin *minerale*) referred to ‘something mined.’ Today minerals are defined as inorganic substances found in crystalline forms such as salt, diamonds and even rocks. Elements are pure inorganic substances which comprise the Periodic Table of Elements (shown below). There are currently 118 known elements; elements 95 to 118 are not currently found in nature but have been synthesized in laboratories. All substances organic and inorganic are formed by combinations of various elements. Notice that the toxic elements are highlighted in the Periodic Table. It is these elements that are the “toxic” part of toxic minerals. Also, the circled 12 elements are radioactive forms of elements used routinely for medical, military, or commercial purposes: All radionuclides may be dangerous, or “toxic”. In accepted usage, a heavy metal is a toxic metal. Some lighter metals are toxic, thus have been termed heavy metals, while some heavy metals, such as gold, and typically are not toxic. Thus, there is ambivalence in the term “heavy metal.”

Rock hounds and crystal collectors BEWARE! Following is a list of the “10 Most Deadly Rocks and Minerals” as compiled by Listverse.com.

**10. Coloradoite** is a recently discovered crystalline mineral originating in magma veins. This mineral is a mercury telluride compound formed when mercury fuses with tellurium, an extremely toxic and rare metal. This looks like the mineral was discovered in Telluride, Colorado, but I have found no reference to this. Interestingly, Coloradoite may be mined for its tellurium content because tellurium readily combines with gold, accounting for a bizarre gold rush in Kalgoorlie, Australia. Pot holes in the streets of Kalgoorlie had been filled with gold-bearing tellurides. Years later, when this was discovered, the gold rush was centered on digging up the ore that had been

used to fill the pot holes. When heated or carelessly handled the double-barreled combination of mercury and tellurium poses a deadly threat.

Crystals, like Coloradoite, are formed from elements mixed in the three innermost super-heated layers of the Earth, beneath the outer layer, known as the Earth’s Crust. The layer beneath the Crust is called the Mantle and is the location of magma. When the magma is forced to the surface, it is known as lava.

**9. Chalcantite.** Seductive blue chalcantite crystals are composed of copper, combined with sulfur, other elements and water. Copper, required in small amounts by the body, becomes highly bio-available in a water soluble form and may be rapidly assimilated, resulting in high copper levels which shut down body processes. Chalcantite should never be tasted for salt content, or an extremely serious overdose of copper may result. Chalcantite may be encountered in copper mining regions world-wide.

**8. Hutchinsonite** is a hazardous but dramatic mixture of thallium, lead and arsenic, forming a lethal mineral cocktail. Signs of chronic thallium exposure through skin contact include loss of hair, serious illness and, in many cases, death. Hutchinsonite was named after John Hutchinson, a prominent mineralogist from Cambridge University. The mineral is found in mountainous regions of Europe.

**7. Galena** (not Kansas or Illinois) is the principle ore of lead, and forms glistening silver cubes with almost unnaturally perfect shapes. The sulfur content of galena makes it extraordinarily brittle and reactive to chemical treatment. Miners and workers in extraction plants may encounter deadly galena poisoning. Currently, lead contamination of public water supplies is a localized, but severe problem in the U.S. IQ suppression is one of many toxic effects of lead poisoning, especially in children. Galena has a cubic structure, and, if hit with a hammer, the crystal will shatter into multiple smaller replicas of its original shape.

**6. Asbestos** (Chrysotile and Amphibolite). Asbestos is not a manmade product, but one of the most terrifying minerals on earth. Asbestos conducts full-scale mechanical sabotage on the human lung. It is composed of silica, iron, sodium and oxygen. Asbestos, being heat and flame resistant, has long been used

for insulation and protective purposes. Both mining operations and natural aging and abrasion of asbestos insulation result in thousands of tiny, fibrous crystals that can become airborne and lodged in the human lung. Recurring, chronic irritation of the lung by these crystals results in pulmonary fibrosis and may lead to mesothelioma, a deadly form of lung cancer. Many humans carry some asbestos fibers in their lungs. Results of exposure to asbestos fibers were discussed by John Higginson, MD, a Geographic Pathologist at the University of Kansas, over 50 years ago. His studies began with discovery of exposure of adults and children to airborne asbestos crystals originating from pilings formed by asbestos mining in South Africa.

**5. Arsenopyrite**, fool's gold with a difference. Fool's gold, pyrite, is iron sulfide. Add a heavy dose of arsenic and you have Arsenopyrite. Heating or any other way of altering Arsenopyrite results in release of lethally toxic, corrosive, carcinogenic vapors characterized by a strong garlic odor. Arsenic, in very small doses given over prolonged periods of weeks and months, used to be the poison of choice by those of murderous intent, but with the advent of easy detectability has fallen out of favor.

**4. Torbernite**, the mineral from hell. The prism shaped green crystals of Torbernite are formed through a complex reaction between phosphorous, copper, water and uranium, and are found as secondary deposits in granitic rocks. Warning—these stunning crystal displays are not for keeping on your desk as paper weights, due to uranium decay, like a pocket-sized Chernobyl, not to mention emission of radon gas capable of inducing lung cancer. Since torbernite can occur in granite, your stylish granite countertops at home may glow in the dark. The bright green crystal blooms of torbernite were used by prospectors as indicators of uranium deposits.

**3. Stibnite** is antimony sulfide, but it looks like silver. For that reason, the huge, shining metallic crystals were once fashioned into magnificent eating utensils. Unfortunately, the crystals were laced with antimony, causing food poisoning of the worst kind, death. Today, even in collections, stibnite utensils or crystals should be handled with great care. Hand washing is recommended after even minimal contact. Mines near Oksaku, Japan produce the best stibnite crystals in the world.

**2. Orpiment**. Composed of arsenic and sulfur, the lethal and chemically reactive orpiment crystals are found growing below the surface in mineral formations, often near hydrothermal vents. It may crumble into dangerous powder when exposed to light. Holding the crystals in your hands may release the carcinogenic, neurotoxic powder. Like cinnabar, the Chinese made extensive use of orpiment, to terrifying ends. Arrows would be rubbed on crushed samples of these stones and then launched to poison the enemy. Orpiment was once used as a primary component of ochre paint, no doubt poisoning many of the artists who used it.

**1. Cinnabar**, mercury sulfide, is the most toxic mineral to handle on Earth. The name itself means dragons blood. Cinnabar is the main ore of mercury. Forming near volcanos and sulfur deposits, the bright red crystals signal danger. Cinnabar may release pure mercury if disturbed or heated, causing tremors, loss of sensation and death. In the Middle Ages and late 1700s, being sent to work in Spanish mines containing cinnabar formations was considered a death sentence. Cinnabar was used widely in China for ornamental food dishes. Some ancient medical practitioners believed cinnabar held healing powers, prescribing it for certain conditions. shutterstock\_164423306

Prevention is worth a pound of cure. First, avoid exposures to toxic minerals by identification and avoidance. If exposure occurs, seek medical attention as soon as possible. Many of the toxic elements that are found in toxic minerals are subject to chelation, which means that the toxic elements can be bound to or otherwise disabled, followed by elimination from the body.

The history surrounding toxic minerals is truly interesting. Frequently, knowledge of toxicity was ignored or suppressed. Today, we are exposed to mercury in amalgam dental fillings and vaccines, and to chemotherapy agents so toxic that it is hoped that the fast growing cancer cells will be poisoned faster than the slower growing normal cells. This knowledge too, is frequently ignored or suppressed. Many sources of information regarding toxic minerals (crystals) and elements are easily found by computer search.

*Save the Date*  
**CHECK YOUR HEALTH**  
March 11~22 2024

# Detox Immune-Boosting Soup

This Detox Immune-Boosting Chicken Soup is the perfect remedy for flu season filled with antioxidants that boost immunity and keep you warm all winter long!



## INGREDIENTS

2 Tbsp olive oil	1/2 tsp. turmeric
1 onion, chopped	1/2 tsp. crushed red pepper
3 large celery stalks, chopped	1 1/2 tsp. sea salt
2 large carrots, peeled and chopped	1 (15 oz) can chickpeas, drained and rinsed
1 cup mushrooms, sliced	3 cups shredded rotisserie chicken
10 cloves garlic, minced	2 cups baby kale leaves
8 cups chicken stock	
2 bay leaves	

## INSTRUCTIONS

In a large pot or dutch oven, heat oil over medium-high heat and sauté onion, celery and carrots, stirring occasionally, about 5 minutes. Add mushrooms and garlic, cooking another 3 minutes .

Stir in the chicken stock, bay leaves, turmeric, crushed red pepper, salt and chickpeas; bringing to a boil. Mix in shredded chicken, cover and turn down heat to a simmer for 15 to 20 minutes. Add kale, cover and simmer an additional 5 minutes. Discard bay leaves, serve and enjoy!

## Contact the Editor

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In this episode of the Real Health Podcast, Chief Medical Officer Dr. Ron Hunninghake, MD, and Jess Higgins Kelley, MNT, ONC, founder of the Oncology Nutrition Institute, discuss the importance of hydration and its role in cancer and overall health.



**EPISODE 68**

*Dr. Doug Thompson, D.D.S., FAAM, ABAAHP*  
In this episode of the Real Health Podcast, Chief Medical Officer Dr. Ron Hunninghake, MD, and Dr. Doug Thompson, D.D.S., FAAM, ABAAHP, discuss how dental microbiome can impact your health, including inflammation, cardiovascular, and cognitive health. How can you help yourself? You can make sure your mouth is as clean as it can be.

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