

## **Zeolite - Nature's Detoxifier**

### **Volcanic Mineral Defends the Health of Your Cells**

One hundred million years ago, volcanoes rose from the sea dividing continents, creating mountains and forming much of the land as we know it. As these volcanoes erupted, molten lava and thick ash composed of ash-aluminosilicates of alkaline and alkaline earths poured into the sea. Over the years, the combination of volcanic ash and sea water produced a chemical reaction forming precious natural minerals like zeolite in hardened lava. Small variations in temperature, geographic location and ash/water properties gave rise to slight differences in the composition and properties of the zeolite deposits. The silica and alumina molecules of the ash formed a stable, open, three dimensional honey comb structure that can differ depending on the ratio of alumina and silica molecules and results in over forty natural zeolite structures.

Zeolites are natural volcanic minerals with unique, complex crystalline structures. Their honeycomb framework of cavities and channels (like cages) works at the cellular level enabling the mineral to adsorb and absorb various solutions, gases, petrochemicals, heavy metals, and low-level radioactive elements. In fact, because it is one of the few negatively charged minerals in nature, zeolites act as magnets, safely drawing toxins into the crystalline structure, capturing them and removing them from the body. The array of channels within the structure provides large surface areas for chemical reactions to take place and occupies 51% of the crystal's volume.

Zeolite molecules can be found in three main forms: fibrous, leafy or crystalline. The medical use of zeolite comes from the crystalline form as it contains high quantities of the mineral clinoptilolite.

### **How Does It Work?**

Zeolite is an extremely hard and microporous structure similar to a honeycomb with ducts and cavities found throughout the molecule. The channels consist of openings where heavy metals or minerals can bind to. The silicon building block is electrically neutral with the aluminum building block exhibiting a negative charge throughout the crystalline structure. In order to maintain electroneutrality, a balancing process occurs whereby the clinoptilolite mineral attracts positively charged minerals such as calcium, potassium, magnesium, iron and sodium. These cations are common within the body and are easily displaced by heavy metals that include mercury, arsenic, cadmium and nickel found within the body for removal.

Interestingly, zeolite has industrially been used for water purification, air filters and in cigarette filters to reduce nicotine and tar. In addition, veterinarian uses for zeolite have been put into practice by its addition into animal feed for the reduction of ammonia production and increase nutrition and into cat litter and animal stalls to reduce odor. Most importantly is zeolite's role in the medical industry. Many individuals do not realize the benefits gained from the supplementation of this amazing product in any detoxification program.

### **USING ZEOLITE MEDICALLY**

Zeolite is a multifaceted mineral that is used medically for an array of conditions and health challenges. The addition of a zeolite supplement in an individual's health regime will help to:

- remove heavy metal toxicity
- balance pH
- bind and remove mycotoxins
- act as an anti-diarrheal
- aid in the prevention of cancer
- act as a potent antioxidant
- trap and remove pre-virus components
- balance the immune system

**In addition, zeolite works on the body to help with:**

- the circulatory system
- kidney function
- skin diseases
- diabetes mellitus
- periodontitis
- endocrine glands
- rheumatic disorders
- neuro-psychosis
- fungal infection
- alcoholic hangovers

The following sections will examine the cause and occurrence of these health challenges and will discuss how zeolite is used as a remedy.

### **HEAVY METAL TOXICITY**

Many heavy metal toxins within the environment are the direct result of industrial waste release, resulting in soil and water pollution. Heavy metals such as lead, arsenic, mercury, aluminum, nickel, and cadmium have absolutely no safe level within the human body. The accumulation of these toxins in fat cells, bones, glands, brain, hair or the central nervous system frequently results in detrimental health effects.

They act in the body like free radicals. Free radicals are highly reactive particles that can cause damage to body tissues. Often people do not realize that they are routinely being exposed to these toxins. Industrial workers are constantly exposed to toxic chemicals while working. Arsenic exposure is a hazard for oil refinery workers, tanners, and insecticide/herbicide sprayers, resulting in a high risk of lung and skin cancer. Individuals that are exposed to asbestos toxicity (brake mechanics, demolition experts, etc.) exhibit a high occurrence of lung cancer. Formaldehyde is also a chemical that many are constantly in contact with even though most people are aware of its danger. Individuals that manufacture wood products, in addition to hospital and laboratory staff are regularly exposed to formaldehyde. Even school biology labs use Petri dishes containing formaldehyde that students use for experiments. Alarmingly, even the new car smell that so many people associate with luxury is the result of formaldehyde discharged from seat and carpet fabric into the air we breathe.

Carcinogens that are found in the workplace that include benzene, diesel exhaust, hair dyes, synthetic fibers, painting materials and others have all been linked with various cancers when individuals are routinely exposed to it. Job related carcinogen exposure is estimated to cause 12% of all cancers.

In addition, exposure to environmental chemicals in and around toxic dump sites has been shown to be synonymous with high breast cancer mortality rates. There is an assortment of environmental chemicals capable of mimicking estrogen in the human body which is believed to contribute to many cases of breast cancer. In 1983, an alarming 420 toxic chemicals were detected in human tissue including breast milk, adipose tissue, liver and blood. Just imagine what the numbers are today!

### **Water Toxins & Nuclear Radiation**

Tap water polluted with contaminants that include heavy metals such as lead, in addition to virulent microorganisms, chlorine, fluoride and industrial wastes has become a major health hazard in North America. Public water systems are often in violation of federal standards for tap water and fail to provide consumers with information on their tap water. Research has determined that exposure to contaminated water further raises the risk of developing cancer and other detrimental health effects. Disturbingly, nothing is being done about the problem.

Furthermore, working and/or living near a nuclear power plant also presents a cancer risk. Radioactive gases released into the air from nuclear plants returns to the earth in rainfall, contaminating both our water supply and soil. This pollution easily makes its way up the food chain and into our grocery cart. Many are unaware of their exposure to dangerous carcinogens in foods. According to Dr. Ernest Sternglass, a professor of Radiation Physics at the University of Pittsburgh, chronic exposure to these contaminated products "may be the single largest factor in the increases incidence of most forms of malignancies since 1945".

## **Mercury Toxicity**

Mercury is a known carcinogenic heavy metal toxin that is capable of impairing immune function and creating blockages in the autonomic nervous system. Mercury amalgams, comprising of 51% of silver dental fillings, has been found to be the main source of mercury exposure in individuals and is found at a concentration that is 6 times higher than that found in seafood.

Alarmingly, mercury vapors are continuously released from amalgam fillings, whereby it is either inhaled or ingested by the individual with the dental fillings. It is then converted by the body into an organic form known as methylmercury. Methylmercury can cross the blood-brain barrier and is associated with the occurrence of Alzheimer's, Multiple Sclerosis, amyotrophic lateral sclerosis and autism. These highly reactive particles have been shown to damage arterial linings and ganglia.

As previously discussed, the pollution in water sources due to heavy metals is on the rise and mercury contamination in these areas is no exception. Four of the five Great Lakes are covered with methylmercury and with any water pollution, it is finding its way up the food chain and imbedding itself in our bodies.

With all of these toxins contaminating the air we breathe, the food we eat, the water we drink, and the environment we live and work in, what can be done to counteract these effects? What can we do to live healthy lives without living in fear of what invisible poisons we have around us?

## **Zeolite – A Heavy Metal Adsorbent**

Zeolite has been found to be an effective heavy metal adsorbent that directly targets impurities within the body and effortlessly removes them.

Researchers have found that the main threats to human health are in the exposure of mercury, cadmium, lead and arsenic. Extensive studies have been undertaken on these metals and their effects on health are regularly reviewed by well known organizations such as the World Health Organization (WHO). Fortunately, studies have shown that zeolite has a tremendous ability to trap these heavy metals by a cation exchange process, thereby reducing heavy metal toxicity within individuals. This process reduces the risk of developing heart disease and certain types of cancer.

Interestingly, zeolite even appears to remove toxins in a hierarchical order. Within the first few weeks of administering zeolite, heavy metals are removed, with secondary priority toxins such as pesticides, herbicides and plastics following suit. Because zeolite is available through the Wolfe Clinic in both liquid and capsular form, invasive methods such as Chelation Therapy are no longer necessary. Heavy metals can now be safely and effectively removed without any discomfort.

### **CANCER**

Cancer prevention has been one of the top challenges that medical researchers have faced in the past century. With increasing environmental pollution and contaminants now reaching our food and water supplies, the occurrence of cancer cases has risen dramatically.

We have talked about heavy metals and their ability to cause cancer, but one of the most widespread carcinogens is nitrosamines. Nitrosamines are found in processed meats, cigarette smoke, beer and the workplace and often enter the body through ingested food and drink. Although highly carcinogenic, nitrosamines require a metabolic activation before they are capable of interacting with DNA to cause a mutation and cancer. As a result, it is possible to trap and remove these contaminants with a selective adsorbent like zeolite.

Zeolite has been used in combination with drugs and additives to remove carcinogens. Because of its ability to bind to a large number of positively charged toxins and thereby indirectly neutralizing their effect in instigating cancer formation, the zeolite undertakes a positive charge. This forms an attraction to the negatively charged cancer cell membrane and causes the cell to pull the zeolite in. Once in the cell, the cell's P21 gene is activated. This gene is extremely important as it functions in tumor suppression by controlling the progression of the cell cycle; therefore, P21 halts tumor growth, thereby suppressing growth signals.

## **THE pH SCALE**

The pH scale is used to measure the body's acid and alkaline levels, ranging from zero to fourteen. A neutral pH is equivalent to the number seven on the scale in which the solution or tissue being measured is neither acidic nor alkaline. Acid solutions or tissues have a pH of less than seven, alkaline solutions or tissues have a pH greater than seven.

The blood is maintained at a homeostatic alkaline pH of around 7.4. The blood must constantly be monitored and kept at a proper pH by dissolved buffers in the blood. However, the average North American diet has been found to contain foods that are high in sugars, starches and refined carbohydrates, which are known to be high acid foods. In addition, people fail to drink enough of the right type of water that is alkalizing to the body and devoid of contaminants. When ingested, these foods and water cause a rise in the acid levels in the body and a shift in the pH. Any shift in the body's pH influences brain and immune functioning in addition to creating a precondition to the formation of cancer and other detrimental health defects such as candidiasis and chronic fatigue. In particular, high acidity impairs brain cell function and can cause depression, anxiety, stupor, paranoia, delusions and/or hallucinations.

In order to prevent any disease formation in an acidic environment, the acid must be neutralized and homeostasis must be restored. Zeolite acts like the buffering system found within the blood, binding to acid waste and removing it from the body. This causes a shift in the pH towards a more alkaline environment, often establishing pH levels of 7.35 to 7.45. By maintaining the environment within the body at an optimum pH level, proper metabolic functioning within the body can occur. Also, brain function is heightened and the immune system works under ideal conditions.

## **VIRUSES & THE IMMUNE SYSTEM**

The immune system is responsible for distinguishing and eradicating any foreign substances and harmful microorganisms that attempt to invade and infect the body. Composed of an intricate detection system consisting of white blood cells, lymph and antibodies, the immune system is constantly fighting off thousands of invading viruses, bacteria, fungi, and parasites that can potentially damage every part of the body. The immune system is also important in detecting mutations within the body such as the generation of tumorous cancer cells and the recognition of toxic chemicals whether released by microorganisms as a byproduct of metabolism or absorbed from the environment. In addition, the immune system is activated when an injury occurs and it has a vital role in tissue repair, healing and the overall maintenance of homeostasis within the body.

Although, there is an array of microorganisms with the capability of invading a body, viruses are extremely detrimental as they are known to be obligate intracellular parasites. Viruses lack the cellular machinery that is essential for self-reproduction, as such, viruses can only reproduce by invading and essentially overtaking living cells and using its nutrients in their quest to reproduce. Virally induced diseases consist of a large range of illnesses that may or may not cause specific diseases with clear diagnostic symptoms. In many cases symptoms can resist diagnosis or they can mimic other illnesses. In addition, some viruses specifically target certain tissues, organs or systems in the body and can cause a localized infection such as a sore throat or a generalized infection such as influenza.

With so many microorganisms constantly bombarding our body and prescription medication no longer effectively counteracting infections, while causing additional problems with immunity instead, the use of zeolite in such cases has proven successful in heightening the immune system and removing viral components from the body. As previously discussed zeolite removes various toxins from the body, especially heavy metals. By removing heavy metals, magnesium stores in the body can efficiently work with adenosine triphosphate (ATP), a metabolic energy source. When this interaction occurs at an optimal level, individuals experience a natural increase in energy, mental clarity and an overall feeling of wellbeing. Research has shown that zeolite also increases serotonin levels, a neurotransmitter that affects emotions, behavior and thought. All of these factors influence the ability of the immune system to fight against infection. Overall, zeolite appears to play a role in balancing the immune system.

In particular, zeolite exhibits the capability of trapping pre-virus components, thereby preventing the replication of viruses and effectively destroying their ability to produce many viral infections. Zeolite's honeycomb structure absorbs and binds viral components into its pores, allowing the body to effectively remove the particles via urination, defecation or perspiration. Studies have found that zeolite blocks the development of viral infections that include Coxsackie virus B-5, Adenovirus 5 and Herpes virus 1. Herpes zoster patients on zeolite have become pain free within 3 days of starting the supplement, while other studies have shown that zeolite has been shown effectiveness in treating flu, colds, hepatitis C, viral or heavy metal induced multiple sclerosis and rheumatoid arthritis.

Zeolite's function as an antiviral appears to have a preventative function that builds up over time. Once the heavy metals, herbicides and pesticides are removed, viral components are then attacked. However, there

has been evidence that in some cases the antiviral effect is immediate.

## **CHRONIC DIARRHEA & IRRITABLE BOWEL SYNDROME**

Digestive disorders have become a widespread health issue effecting 21 to 51 million Americans. With the fast food diets, processed foods and dwindling nutritional regimen consisting of a daily intake of fresh vegetables and fruits, our digestive tracts are consistently under attack. This has resulted in individuals suffering from abdominal cramps, bloating, diarrhea and constipation that may be the result of irritable bowel syndrome (IBS), the abnormal functioning of the gastrointestinal tract (GI). Affecting all ages, races and gender, nearly two-thirds of IBS patients are female.

The gastrointestinal tract is composed of a 5 foot long colon that connects the small intestine to the rectum and anus. The colon functions in absorbing water, nutrients and salts from digested food. Once these nutrients are absorbed, the colon is responsible for the peristaltic movement of the intestinal debris known as stool. The muscular contractions move the contents within the colon toward the rectum and results in a bowel movement. However, if the colon muscles, sphincters and pelvis do not instantaneously contract, the stool within the colon is not moved through correctly and results in abdominal pain, cramps, constipation, diarrhea and a sense of an incomplete bowel movement.

IBS sufferers often seek medical advice for symptom relief, but in many cases a prescription is not necessarily the best answer. Several drugs can result in habit forming addictions and in some cases severe side effects. Many patients suffering from gastrointestinal disorders can effectively cope with their illness by managing stress, making changes to their diet and water intake and using natural supplements that will help to cleanse the colon of putrefying debris and toxins, regenerate gastrointestinal tissue and re-establish appropriate peristaltic contractions.

### **Zeolite, an Anti-Diarrheal**

Research indicates that natural zeolite exhibits an anti-diarrheal action within the body. It appears to lower the incidence of sickness and death due to intestinal diseases in animals. Due to these findings, a comprehensive study was done on the use of zeolite in anti-diarrheal drugs in humans as a therapeutic remedy for acute diarrhea. The positive results in the study led to the inclusion of zeolite in anti-diarrheal drugs in humans.

The ingestion of zeolite is considered to be analogous to clay eating, which is considered to be a traditional remedy for various illnesses. For centuries, the powdered forms of specific zeolites have been used as traditional remedies throughout Asia to promote overall health and well being. The story of the "volcanic rock" has been passed down from generation to generation as more and more people have experienced its life-changing benefits. Here is how it works in the gastrointestinal tract:

Zeolite exhibits ion exchange properties, a characteristic that we have previously described. Because of this zeolite can change the pH, ionic content, buffering ability of GI secretions and transport of nutrients through the intestinal epithelium. It instigates re-absorption of nutrients and enhances the effectiveness of the normal flora within the digestive tract. In addition, zeolite can induce the GI secretion of cytokines, a component of the immune system that creates a healthier and more efficient digestive tract. The immune response instigates the removal of "bad bacteria" and promotes the growth of beneficial flora and fauna, "good bacteria" within the intestinal tract.

In addition, zeolite promotes better nutrient utilization, energy conservation and a reduction in epithelial cell turnover. Bearing in mind that zeolite is a negatively charged particle that attracts and binds to positively charged particles; ammonium ions released from the deamination of proteins during the digestion process are instantaneously bound in zeolite presence. Ammonia, a cell toxicant, can potentially damage the epithelial lining of the GI tract and directly affect the digestive process. Once again, the use of zeolite and reverse detrimental health defects in the body.

### **OTHER ZEOLITE USES**

Throughout this article we have discussed the specifics of how zeolite benefits the body's physiological systems ranging from detoxification, immune improvement, enhancing intestinal functioning and alkalinity. However, there are a variety of other health issues that can benefit from supplementation of zeolite. A summary of how zeolite works with each illness is described below:

- **Mycotoxins** – Mycotoxins is a family of toxins produced by certain fungal species. Aflatoxin, a type of mycotoxin has been linked to the occurrence of stomach, kidney, and liver cancer. Studies show that zeolite absorbs aflatoxins and notably improves overall health in animals.
- **Hangovers** – Alcohol intoxication disrupts normal biological processes, most notably the ability of the liver to detoxify the blood. As a result, toxic metabolites are produced and are far more toxic than the actual alcohol that is consumed, causing the “hangover” (nausea, headaches and discomfort). Zeolite relieves the side effects of excessive alcohol consumption by removing these toxins.
- **Fungal Infections** – Zeolite eliminates fungal infections of the skin and feet, in addition to internal infections of mucosal membranes and internal organs
- **Skin Diseases** – Seborrhea, dermatitis, herpes, psoriasis and other skin disorders all have been treated with Zeolite supplementation. In addition, any individual that uses zeolite will find that an overall improvement in skin quality occurs as moisture is increased and resistance to a variety of negative external factors (like UV rays) is enhanced.
- **Physical Endurance** – Zeolite has been found to eliminate pain during an increase in physical activity and directly heighten endurance an individuals overall endurance.
- **Wounds and Burns** – Zeolite relieves pain, scarring and accelerates healing of wounds and burns.
- **Neurological Effects** – Alzheimer’s, Parkinson’s, schizophrenia, and epilepsy have all benefited from zeolite supplementation. It has also been connected to improvement in the treatment and overall disposition of insomnia, depression and neurosis.
- **Circulatory System** – Zeolite strengthens the heart muscle and stabilizes the circulatory system. Also, blood pressure improvement, reduced vein viscosity, the disappearance of enlarged capillaries and reduction in hemorrhoids occurs in the presence of zeolite.
- **Diabetes Mellitus** – Zeolite stabilizes and decreases blood sugar level in diabetes patients.
- **Periodontitis** – Inflammatory gum disease resulting in the loss of bone and teeth and the appearance of oral micro-organism can be controlled by the application of a powder for of zeolite added directly into toothpaste or gums.
- **Endocrine Glands** – The endocrine gland specializes in the secretion of hormones and zeolite directly enhances its activity.
- **Rheumatoid Arthritis** – Supplemental zeolite was found to improve the treatment of rheumatic disorders. This includes arthritis, spondilosis, discopathy and sciatica.