

## **Zeolite supplement benefit and side effects, review, does it have benefits to the body? by [Ray Sahelian, M.D.](#)**

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Natural zeolites are crystalline aluminosilicates with unique adsorption, cation-exchange, and catalytic properties that have multiple uses in industry and agriculture. Synthetic zeolites are the most important catalysts in petrochemical refineries because of their high internal surface areas and molecular-sieving properties.

### **Zeolite supplements benefit**

Zeolite supplements are now being sold, one particular one is liquid zeolite. Do they have any practical clinical usefulness? We have not seen such human research as of 2013. At this time it is difficult to make any statements regarding the benefits or side effects of a zeolite supplement. Furthermore, even if it is beneficial, it is difficult to know what the ideal dosage would be and how it would interact with other supplements or medicines. There are countless other herbs and supplements that have more research to support their use as [antioxidants](#), anti cancer agents, or for the treatment of medical conditions. Since zeolite supplements don't have much, if any, human research it is difficult to make claims regarding their clinical usefulness or advantage over other herbs, vitamin, nutrients, and minerals.

### **Alzheimer's disease**

Life Sci. 2013. Dietary zeolite supplementation reduces oxidative damage and plaque generation in the brain of an Alzheimer's disease mouse model. Department of Biomedical Sciences and Biotechnologies, University of Brescia, Brescia, Italy. Our results suggest micronized zeolite as a novel potential adjuvant in counteracting oxidative stress and plaque accumulation in the field of neurodegenerative diseases.

### **Zeolite and bone, mineral metabolism**

Sodium Zeolite A Supplementation and Its Impact on the Skeleton of Dairy Calves.

Biol Trace Elem Res. 2007. Turner KK, Nielsen BD, O'Connor-Robison CI, Rosenstein DS, Marks BP, Nielsen FH, Orth MW. Department of Animal Science, Michigan State University, East Lansing, 48824, USA. Twenty calves were placed on study at 3 days of age and were placed according to birth order into one of two groups: SS, which received

0.05% BW sodium zeolite A (SZA) added to their milk replacer, and CO, which received only milk replacer. There were no differences in osteocalcin concentrations because of treatment, and CO calves had lower deoxypyridinoline concentrations than SS calves. No differences in bone architecture or mechanical properties were detected. SZA supplementation increased cortical bone and articular cartilage aluminum content. Glycosaminoglycan concentrations were not different in synovial fluid or cartilage. Supplementation of SZA appeared to alter the rate of bone turnover without altering bone strength. Aluminum concentrations in the bone and cartilage increased, which may be a concern, although the long-term consequences of such remain to be determined.

Effect of several doses of zeolite A on feed intake, energy metabolism and on mineral metabolism in dairy cows around calving.

J Anim Physiol Anim Nutr. 2009; Grabherr H, Spolders M, Fürll M, Flachowsky G. Institute of Animal Nutrition, Friedrich Loeffler Institute, Research Institute of Animal Health, Braunschweig, Germany.

The object of the present study was to determine the influence of different zeolite A doses on dry matter intake (DMI) and mineral metabolism, and to evaluate an optimum dosage for preventing hypocalcaemia. Eighty pregnant dry cows were assigned to four groups (I-IV). They were fed a total mixed ration ad libitum. Groups II, III and IV received an average daily dose of 12, 23 and 43 g zeolite A/kg DM for the last 2 weeks prepartum. Individually DMI was recorded daily. Serum was analysed for Ca, Mg, P(i), K, non-esterified fatty acids and beta-hydroxybutyrate. During zeolite A supplementation, mean DMI of Group IV was significantly lower compared to Groups I-III. The reduced feed intake of Group IV resulted in significantly increased BHB as well as decreased NABE after calving. Zeolite A supplementation in higher doses (III and IV) had a stabilizing effect on Calcium metabolism around calving for older cows, whereas cows in Groups I and II showed a subclinical hypocalcaemia. The mean serum Mg concentration decreased significantly in older cows in Group IV at calving. The mean P(i) concentration in cows of Group IV decreased into ranges of hypophosphataemia already 1 week after beginning of zeolite A feeding. The mean DMI postpartum as well as the milk yield was not affected by zeolite A supplementation. Feeding of 23 g zeolite A/kg DM TMR prepartum proved to be an adequate dosage for reducing subclinical hypocalcaemia frequency without significant effects on feed intake and P(i) concentration in serum.

### **Zeolite supplement as immune modifier**

Dietary supplementation with the tribomechanically activated zeolite clinoptilolite in immunodeficiency: effects on the immune system.

Adv Ther. 2004. Megamin GmbH, Berlin, Germany  
TMAZ, a natural zeolite clinoptilolite with enhanced physicochemical properties, is the basis of the dietary supplements Megamin and Lycopomin, which have demonstrated antioxidant activity in humans. The aim of this prospective, open, and controlled parallel-group study was to investigate the effects of supplementation with TMAZ on the cellular immune system in patients undergoing treatment for immunodeficiency disorder. A total of 61 patients were administered daily TMAZ doses of 1.2 g (Lycopomin) and 3.6 g (Megamin) for 6 to 8 weeks, during which the patients' primary medical therapy was continued unchanged. Blood and lymphocyte counts were performed at baseline and at the end of the study. Blood count parameters were not relevantly affected in either of the two treatment groups. Megamin administration resulted in significantly increased CD4+, CD19+, and HLA-DR+ lymphocyte counts and a significantly decreased CD56+ cell count. Lycopomin was associated with an increased CD3+ cell count and a decreased CD56+ lymphocyte count. No adverse reactions to the treatments were observed.

### **Zeolite and cancer studies**

Nonfibrous Japanese Zeolite, and synthetic Zeolites are not classified as to their carcinogenicity to humans. These ingredients are not significantly toxic in oral acute or short-term oral or parenteral toxicity studies in animals. Inhalation toxicity, however, is readily demonstrated in animals, and appears to be a factor in mesothelioma in humans. Particle size, fibrogenicity, concentration, and mineral composition have the greatest effect on toxicity.

Anticancer and antioxidative effects of micronized zeolite clinoptilolite. Anticancer Res. 2003 Mar-Apr;23(2B):1589-95. Ruder Boskovic Institute, Division of Molecular Medicine, Bijenicka 54, HR-10000 Zagreb, Croatia.

Treatment of cancer-bearing mice and dogs with micronized zeolite clinoptilolite (MZ) led to improvement of the overall health status, prolongation of life span and decrease of tumor size in some cases. It also reduced lipid peroxidation in the liver of mice. The experiments were performed on various tumor cell cultures and tumor-bearing animals. Immunohistochemistry was used to analyze if micronized zeolite clinoptilolite could interfere with Doxorubicin-induced lipid peroxidation and consequential production of 4-hydroxynonenal (HNE). MZ reduced the metabolic rate of cancer cells and increased binding of HNE to albumin in vitro. It selectively reduced generation of HNE in vivo in tumor stroma after Doxorubicin treatment leaving onset of lipid peroxidation intact in malignant cells. Combined treatment with Doxorubicin and MZ resulted in strong reduction of the pulmonary

metastasis count increasing anticancer effects of Doxorubicin.

**CONCLUSION:** Interference of micronized zeolite clinoptilolite with lipid peroxidation might explain some of the beneficial effects of this particular zeolite in combined cancer therapy.

Natural zeolite clinoptilolite: new adjuvant in anticancer therapy.

J Mol Med. 2001. Ruder Boskovic Institute, Division of Molecular Medicine, Zagreb, Croatia.

Natural silicate materials, including zeolite clinoptilolite, have been shown to exhibit diverse biological activities and have been used successfully as a vaccine adjuvant and for the treatment of diarrhea. We report a novel use of finely ground clinoptilolite as a potential adjuvant in anticancer therapy. Clinoptilolite treatment of mice and dogs suffering from a variety of tumor types led to improvement in the overall health status, prolongation of life-span, and decrease in tumors size. Local application of clinoptilolite to skin cancers of dogs effectively reduced tumor formation and growth. In addition, toxicology studies on mice and rats demonstrated that the treatment does not have negative effects. In vitro tissue culture studies showed that finely ground clinoptilolite inhibits protein kinase B (c-Akt), induces expression of p21WAF1/CIP1 and p27KIP1 tumor suppressor proteins, and blocks cell growth in several cancer cell lines. These data indicate that clinoptilolite treatment might affect cancer growth by attenuating survival signals and inducing tumor suppressor genes in treated cells.

Prospective study of mesothelioma mortality in Turkish villages with exposure to fibrous zeolite.

J Natl Cancer Inst. 2006. Guven Hospital, Ankara, Turkey.

Mesothelioma incidence is high in certain villages on the Anatolian plateau in Turkey, where environmental exposure includes erionite, a form of zeolite fibers, from the local volcanic tuff. A prospective study of residents of two exposed and one nearby control village was initiated in 1979 and continued through December 31, 2003. A total of 891 men and women, aged 20 years or older, were included, 230 of them residing in the village without known exposure to erionite. During the 23-year follow-up, 372 deaths occurred; 119 of these were from mesothelioma, which was the cause of 44% of all deaths in the exposed villages. Seventeen patients had peritoneal mesothelioma; the rest had pleural mesothelioma. Only two cases of mesothelioma, one of each type, occurred in the control village-both in women born elsewhere. Our results emphasize the severity of the mesothelioma endemic in erionite -exposed areas of Turkey and call for intensified prevention of mesothelioma by limiting environmental exposures to these zeolite fibers.

## **Zeolite review**

I came across an excellent review that readers should be aware of.

What a physician should know about zeolites

Lijec Vjesn. 2000. Boranic M. Institut Ruder Boskovic, Zavod za molekularnu medicinu, Bijenicka cesta, Zagreb.

Zeolites are natural and synthetic hydrated crystalline aluminosilicates endowed with absorptive and ion exchange properties. They have found numerous and multifarious applications--in industry as catalysts and absorbents, in water sanitation for the removal of ammonia and heavy metals, in agriculture as fertilizers, and in animal husbandry as the absorbents of excreted material and as food additives. Medical applications have included the use in filtration systems for anesthesia or dialysis and as the contrast materials in NMR imaging. Recently, zeolite powders for external use have found application as deodorants, antimycotic agents and wound dressings. Peroral use of encapsulated zeolite powders enriched with vitamins, oligoelements or other ingredients has been claimed to exert beneficial medical effects. Ingestion of zeolites may be considered analogous to the clay eating (geophagia), considered in traditional medicine as a remedy for various illnesses. Being amphoteric, zeolites are partly soluble in acid or alkaline media, but within the physiological pH range the solubility is generally low. Minimal amounts of free aluminium or silicium from the ingested zeolites are resorbed from the gut. The bulk of ingested zeolite probably remains undissolved in the gut. In view of the ion exchange properties, zeolites may be expected to change the ionic content, pH and buffering capacity of the gastrointestinal secretions and to affect the transport through the intestinal epithelium. In addition, zeolites could affect the bacterial flora and the resorption of bacterial products, vitamins and oligoelements. The contact of zeolite particles with gastrointestinal mucosa may elicit the secretion of cytokines with local and systemic actions. Reactive silicium ions might react with biomolecules of the intestinal epithelium, and if resorbed, do so in other cells. Mutagenic and carcinogenic effects of zeolite particles have been described, resembling such effects of asbestos fibers. Thus, local and systemic effects of zeolites may be complex and interrelated, and an objective assessment requires appropriate experimental models.

### **Zeolite for burns**

Use of zeolite -containing biologically active food supplement in patients with burn trauma.

Vopr Pitan. 2004.

The content of cationic protein in blood neutrophils, the serum activity of lysosomal enzymes, the intensity of peroxide lipid oxidation, the antioxidant serum activity and the blood concentration of trace

elements were assessed in patients with burn injury. Some patients as addition to the main therapy got zeolyt-containing biological active addition to food (BAAF) "Lytovit" with its ability for sorption and selective ion exchange. Before the beginning of the treatment in all patients high value of the cationic protein degranulation, decrease of neutrophils biocidity, and increase of lipid peroxidation against a background of antioxidant activity were found. In patients, who had got zeolyt containing BAAF, the normalization of trace elements blood concentration and indices of neutrophils functional activity began earlier, then in patients without zeolyte containing biological active addition treatment. "Lytovit" promoted the more early regress of the clinic manifestations: the body temperature normalization, wounds self-cleaning from purulent discharge, diminishing of frequency and area of the grafts lysis.

#### Use in agriculture

Inactivation of mercury in contaminated soils using natural zeolites. Sci Total Environ. 1997. Agricultural University of Athens, Laboratory of Soils and Agricultural Chemistry, Greece.

The application of zeoliferous rocks, from Metaxades region (Thrace, Greece) to soils contaminated with mercury significantly reduced the concentrations of mercury in the shoots and roots of alfalfa (*Medicago sativa* L.) and ryegrass (*Lolium perenne*). Use of natural zeolites at application rates of 1%, 2% and 5% by soil weight caused reductions in mercury concentrations of up to 86% in shoots and 58% in roots, compared with controls with no added zeolites. The reductions are more pronounced in above-ground plant material than in roots of the two plant species. The use of natural zeolites, as soil additives, to reduce the uptake of mercury by plants and the restriction of the entry of mercury into the food chain, is noted.

#### **Zeolite marketers get FDA letter**

2007 The FDA has ordered Zeo Health Ltd to stop illegal claims for three zeolite mineral products that have zeolite. These include Destroxin (for cancer prevention and treatment), Esdifan (for diarrhea) and Zeo (for hangover preventive).

#### **Questions and comments**

Q. I was searching information on chlorella, and i stumbled across a product called liquid Zeolite. how do these products compare?

A. We are not familiar with liquid Zeolite, but we found a web site that claims: "Liquid zeolite is a 100% natural liquid detoxifier formulated from purified, activated zeolite. One of the few negatively charged minerals in nature, zeolite is formed from the fusion of volcanic lava and ocean water. Activated liquid zeolite is a food supplement used

primarily to remove heavy metals and other toxins efficiently and safely from the body, and to increase general immunity and well-being. Liquid zeolite is extremely safe." They add, "Liquid zeolite removes pesticides, herbicides, and dioxins, reduces viral load, reduces absorption of nitrosamines, helps buffer the body to a healthy alkalinity, helps reduce cancer risk, reduces symptoms of allergies, helps prevent premature aging, etc." Whenever we see these kinds of statements, we immediately become suspicious.

Q. I am interested in getting rid of mercury from the body. Chlorella is always mentioned and suggested, but recently a site came up which recommends " liquid zeolite ". As far as I know, not much zeolite human research has been documented. What are your thoughts? By the way, chlorella seems very expensive and takes a very long time to do the job. This is why I have continued to search for an alternative.

A. We don't have much experience with zeolite since it is a very new supplement.

Q. I have a question about what other medicines you can take at the same time you take zeolite. can you take graviola [herb](#) and Zeolite together? Do you have to stop taking it when you take chemo?

A. Since human research is not available regarding graviola supplement use, we can't say. There are dozens of chemotherapy drugs, each has its own interactions with supplements.

Q. I noticed that you discuss Zeolite on your website. I also noticed that you do not sell a Zeolite product on your website. We would like to discuss some possible business. We are the manufacturers in the USA of Zeolite

supplements. We have been in business for over 8 years and way before any of these crazy liquid companies or MLMs popped up with this product that they are calling Zeolite.

A. I would be interested when a couple more actual studies are published on Medline regarding zeolite supplement use in humans.

Q. Do you have any experience or knowledge of zeolite. I would be using it to treat my beloved yellow lab who has multiple myeloma. There seems to be quite a controversy over which is best, powder or liquid?

A. I have no idea what the effect of zeolite would be on multiple myeloma.

Q. My Rottweiler has osteosarcoma of the shoulder, and I have been giving her 15 drops of zeolite enhanced twice or three times daily. She is doing very well on this. However, recently I was advised about

Artemex (Artemisinin) - known as the "cancer bomb" - which attacks the iron within the cancer cells, to destroy them. I am wondering if you have had any experience with this and whether or not you think there may be a conflict between the zeolite (which eliminates excess iron from the body) and the Artemex (which requires iron in the cancer cell in order to work). I am continuing to administer both the zeolites and Artemex to my dog, and there have been no visible negative effects. I am simply wondering if the zeolites negate the Artemex.

A. Sorry but I don't have any experience with this combination or the use of zeolite for osteosarcoma.

My son has been on chelation therapy (the second round of drugs) for having levels of arsenic in his body nine times the safe level. He has been living in China for 3 years and returned to the U.S. once a U.S. neurologist made the diagnosis. He continues to have some tremors and numbness, however, after 6 weeks of chelation there are small signs of improvement. My question: Zeolite talks about removing toxins from the body, which include heavy metals, and I want to know if Zeolite will replenish the minerals which have been removed from the blood, bones and brain by chelation? He has 3 more weeks of chelation therapy and I would like to find something to rebuild his body.

I am not aware of any studies that have looked at the role of this supplement as a treatment for post chelation therapy.

I was reading on Zeolite and came across your info on it. I found info on Memorial Sloan Kettering's Integrative Medicine page and it seems to be a good article.