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Avini Health's Cell Defender® (CD) is the original 'liquid' zeolite (colloidal suspension) and the "category creator" for zeolite products used for health and wellness. Over 6 million bottles have been sold worldwide – generating thousands of testimonials from satisfied customers. There is no product on the market that helps remove toxins from the body as effectively, or as safely, as Cell Defender®.

While we have been making activated and micronized zeolite for over 20 years, research has continued on the use of the zeolite clinoptilolite. I'd like to take this opportunity to update Avini Distributors on the published research and their findings over the last few years. Understand that this article is a review of the published literature on third-party research. None of this makes any claim as to the treatment or prevention of disease with the use of Avini Health products.

A simple search of the PubMed database (National Library of Medicine: National Center for Biotechnology Information) for the terms "clinoptilolite" AND "health" provided 93 results over the last ten years. All published research provides evidence of various benefits and an abundance of evidence on the inherent safety of the use of clinoptilolite zeolite. These studies include: 12 studies on increasing soil health, 2 studies in air purification, 9 in cancer, 6 on digestive health, 2 on neurologic health, 5 on bone health (osteoporosis), 3 on antiviral applications, 2 on blood sugar health (diabetes),



2 on wound healing, 9 on water purification, 7 on heavy metal removal, and 19 on use in agricultural animals.

Even with all of the different outcome studies, the underlying common denominator is always the same: the zeolite removes toxins, which restores health and the stability of the environment. As you have all heard me say – A cleaner, healthier body fixes itself.

In reviewing some of the literature, there are some new concepts that we have not really discussed in our work with Cell Defender®. As an example, one study in prostate cancer published in 2020 specifically looked at the prevention of nerve damage in patients using the chemotherapy oxaliplatin. The study found:

**"Patients may benefit from adjuvant therapy with appropriate zeolite-products in CIPN (Chemotherapy-induced peripheral neuropathy). A lower level of CIPN was observed in the cohort tested herein in general, and particularly in the male subgroup, statistically significant results were obtained. Furthermore, better tolerance toward chemotherapy (increased number of cycles) accompanied by a lower incidence of severe-grade hematologic toxicity was achieved."**

[Vitale MG, et al. ZeOxaNMulti Trial: A Randomized, Double-Blinded, Placebo-Controlled Trial of Oral PMA-zeolite to prevent Chemotherapy-Induced Side Effects, in particular, Peripheral Neuropathy. 2020 May 13;25(10):2297]

We have seen this many times and in several studies over the last 20 years that have shown that clinoptilolite can safely be used as an adjunct to cancer therapy – with most studies showing a reduction in the side effects from treatment as well as improved patient outcomes.

While we have discussed the benefits that people with diabetes have seen using zeolite supplementation, it was very encouraging to see the published research. One mouse study showed a 13% reduction in blood sugar levels in mice fed clinoptilolite before meals (Markoska R, et al. Study of zeolite clinoptilolite d-glucose adsorption properties in vitro and in vivo. S. Chem Biol Interact. 2023 Sep 1;382:110641). The proposed mechanism is that the dipole moment of the glucose molecule provides a positive charge on one side. This may allow the zeolite to drag the glucose around – keeping it in the bloodstream and 'shuttling' it to where it may be utilized.

In a 5-year, placebo-controlled study, participants with osteoporosis using clinoptilolite supplementation saw improvements in bone density, a reduction in risk of hip fractures, and a reduction in pain (Kraljević Pavelić, et al. Clinical Parameters in Osteoporosis Patients Supplemented With PMA-Zeolite at the End of 5-Year Double-Blinded Clinical Trial. Front Med (Lausanne). 2022 Jun 27;9:870962). The proposed mechanism is a slow removal of sequestered lead in bones that allows for more efficient calcium resorption back into the bones over time.

One in vitro study looked at the virucidal activity of clinoptilolite. This study found, "A wide range of antiviral efficiencies was observed, ranging from up to 99% for Herpes Simplex virus to no activity for Rhinovirus," showing that the antiviral properties of clinoptilolite "depend on a complex set of factors including virus structure and medium composition" (Sarabi A, et al. Unveiling the Broad-Spectrum Virucidal Potential of Purified Clinoptilolite-Tuff. Microorganisms. 2024 Aug 1;12(8):1572). The proposed mechanism is the zeolite clathration of viral particles prior to viral assembly. If this occurs, the virus may not be able to properly assemble or, more likely, the assembled virus may be missing vital parts that make it non-viable.



A rat model of Alzheimer's Disease provided a new mechanism by which zeolites may prevent disease progression by targeting ferroptosis – a new type of cell death – by modulating metals with iron shuttling (Abu-Elfotuh K, et al. Targeting Ferroptosis/Nrf2 Pathway Ameliorates A $\beta$ (1-3)-Induced Alzheimer's Disease in Rats: Neuroprotective Effect of Morin Hydrate, Zeolite Clinoptilolite, and Physical Plus Mental Activities. *J Mol Sci.* 2025 Jan 31;26(3):1260). This information is further supported by a review article on zeolite's effects on various neurodegenerative conditions, including Alzheimer's and Parkinson's (Panaiotov S, et al. Zeolite and Neurodegenerative Diseases. *Molecules.* 2024 Jun 2;29(11):2614). The proposed mechanisms are iron, aluminum, and mercury removal that may aid in better neurologic functioning.

Our own published research has provided ample evidence that the micronized and activated zeolite in the Cell Defender® that we know as Detoxolite™ is safe and highly effective at removing toxins and heavy metals from the body. We also know that natural metabolic processes are greatly improved when those toxins are removed from the system. Again – A cleaner, healthier body fixes itself.

Lastly, this research clearly shows that the potential benefits of ingesting clinoptilolite may far exceed anything that we have currently seen – all of this with an almost non-existent risk profile. It can be humbling to see that this little, natural mineral can have so much potential for the improvement of life, and we can be a small part of its story.



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