



Preventing and Treating Long-Haul COVID-19 and Other Types of Inflammation

All active ingredients being included are considered GRAS in the US. **Generally recognized as safe (GRAS)** is a United States Food and Drug Administration (FDA) designation that a chemical or substance added to food is considered safe by experts.

Zinc compounds

Zn²⁺ Inhibits Coronavirus and Arterivirus RNA Polymerase Activity *In Vitro* and Zinc Ionophores Block the Replication of These Viruses in Cell Culture:

Increasing the intracellular Zn²⁺ concentration with zinc-ionophores like pyrithione (PT) can efficiently impair the replication of a variety of RNA viruses, including poliovirus and influenza virus.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2973827/>

Clinical significance summary: Preliminary results of a rapid review of zinc for the prevention and treatment of SARS-CoV-2 and other acute viral respiratory infections:

As of 9 June 2020, indirect evidence from other types of viral respiratory infections suggests that zinc may potentially reduce the risk, duration and severity of SARS-CoV-2 infections; particularly for populations at risk of zinc deficiency. Notably, people with chronic disease co-morbidities and older adults are at risk of lower zinc status. Pending the results of SARS-CoV-2 clinical trials, clinicians might consider assessing zinc status as part of a SARS-CoV-2 clinical work-up to determine if short-term zinc supplementation, either orally or intravenously is indicated for those with low or borderline low results, low dietary intake and/or increased needs.

<https://ses.library.usyd.edu.au/handle/2123/23052>

Zinc for the prevention and treatment of SARS-CoV-2 and other acute viral respiratory infections: a rapid review:



Currently, indirect evidence suggests zinc may potentially reduce the risk, duration and severity of SARS CoV-2 infections, particularly for populations at risk of zinc deficiency including people with chronic disease co-morbidities and older adults. Direct evidence to determine if zinc is effective for either prevention or treatment of SARS-CoV-2 is pending. In the interim, assessing zinc status of people with chronic diseases and older adults, as part of a SARS-CoV-2 clinical work-up, is reasonable as both groups have a higher risk of zinc deficiency/insufficiency and poorer outcomes from SARS-CoV-2.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7395818/>

The Potential Impact of Zinc Supplementation on COVID-19 Pathogenesis:

As zinc is essential to preserve natural tissue barriers such as the respiratory epithelium, preventing pathogen entry, for a balanced function of the immune system and the redox system, zinc deficiency can probably be added to the factors predisposing individuals to infection and detrimental progression of COVID-19. Finally, due to its direct antiviral properties, it can be assumed that zinc administration is beneficial for most of the population, especially those with suboptimal zinc status.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7365891/>

A Hypothesis for the Possible Role of Zinc in the Immunological Pathways Related to COVID-19 Infection:

- Zinc deficiency may be common and associated with severe infection.
- Zinc helps to enhance the interferon type 1 response to the virus and participates in many regulatory pathways.
- Low levels of zinc have been associated with higher IL-6 responses.
- IL-6 plays an important role in severe lung injury due to COVID-19 infection. •

Zinc inhibits SARS-CoV RNA polymerase, and thus its replication capacity.

- Zinc may increase the efficacy of antimalarial agents, since they are zinc ionophores.
- Differences in mortality due to COVID-19 infection may be explained to some degree by -174 IL 6 gene polymorphism.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7365859/>



20-Week Study of Clinical Outcomes of Over-the-Counter COVID-19 Prophylaxis and Treatment:

Role of zinc

Zn⁺² mediates numerous non-specific and specific immunological functions: ^{16,17} From normal development and function of cells, ^{18,19} including those regulating nonspecific immunity, inter alia, activity of natural killer (NK) cells and neutrophils, and macrophage function; to maintaining expression of tight-junction proteins between lung-lining muco-epithelial cells, blocking entry of pathogens; from increasing cilia length and ciliary beat-frequency in those cells' mechanical clearance of surface "litter" such as virus particles, and repair of such function in coronavirus-damaged lung cells; to immune response modulation, ^{20,21} tamping down on overshooting inflammatory immune responses ²² (thus preventing, for example, high levels of inflammatory mediators such as destructive reactive oxygen and nitrogen species) and normalizing the ratios of diverse immune cell types. Additionally, zinc is strongly implicated in inhibiting viral binding to cell membrane ACE2 receptors used by the coronavirus to latch onto the outside of potential host cells as an essential step preparatory to entering and invading those cells; and for its inhibiting effect on functioning of viral replication enzymes such as retroviral RNA replicase, ²³ thus blunting the attack by those virus particles that do gain entrance to host cells.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8264737/>

The Role of Zinc in Antiviral Immunity:

Few studies have examined the antiviral effects of zinc on other respiratory viruses. In vitro replication of influenza (PR/8/34) is significantly inhibited by the addition of the zinc ionophore pyrrolidine dithiocarbamate (¹¹⁰), perhaps through inhibition of the RNA-dependent RNA polymerase (RdRp), as had been suggested 30 y earlier (¹¹¹). In similar fashion, severe acute respiratory syndrome (SARS) coronavirus RdRp template binding and elongation was inhibited by zinc in Vero-E6 cells (⁶⁰). Moreover, zinc salts were shown to inhibit respiratory syncytial virus, even while zinc was incubated with HEp-2 cells only before infection, and then removed (⁷²).

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6628855/>

For further details and the list of all ingredients please click on the link or visit our website www.rheumcare.com/research-ingredient-nutraceutical

2801 NE 213th Street, Suite 801
Aventura, FL 33180
www.covid19longhaulerclinic.com



@covid19longhaulerclinic