COVID-19: THE BENEFITS OF ZINC – AN EVIDENCE-BASED INFORMATION LEAFLET

Zinc is essential for immune functioning and can prevent and reduce the duration and severity of respiratory viruses

Zinc is an essential trace element, is essential for both innate and adaptive immune function and has anti-inflammatory and antioxidant properties [1,2,3,4,5,6]. It can also impair viral replication in the cell, inhibiting coronavirus RNA polymerase activity, supporting ciliary growth and function in the respiratory system and improving the respiratory epithelial barrier[7,8,9,10,11,12].

Deficiency can lead to increased susceptibility to infections[13], as well as sepsis, commonly seen in COVID-19 patients, a higher incidence of organ dysfunction and increased in-hospital mortality[14,15]; lower zinc levels in surgical sepsis patients were associated with a higher susceptibility to a recurrent sepsis episode. In the elderly, low zinc was associated with increased incidence and duration of pneumonia[16].

A meta-analysis found that zinc could prevent respiratory tract infections, including in older adults[17] and young children, where a large meta-analysis of children between the ages of 2 and 59 months found that those who supplemented with zinc were 13% less likely to develop pneumonia[18]. A similar trial in children aged <2 years determined that in conjunction with standard antibiotic treatment, 20mg/day zinc reduced the recovery time and overall hospital stay of those with severe pneumonia and shortened the duration of severe symptoms by 30% compared to placebo[19]. A meta-analysis showed that zinc can reduce the duration of the common cold virus[20].

Certain people are more at risk of low zinc levels. Zinc deficiency is common, especially in those people most at risk for severe COVID-19 infections; this includes those on a vegetarian or vegan diet and women who are pregnant or breastfeeding[21]. The elderly, who are known to have suppressed immune functioning, are also at risk of low zinc; even marginal zinc deprivation can affect immune function[22,23].

Could I have low zinc levels? The body cannot store zinc, so daily intake of zinc is needed to maintain adequate body levels[24]. Symptoms of low zinc levels include anorexia, lethargy, diarrhoea, loss of taste and smell (a typical symptom of COVID-19), impaired wound healing, growth restriction in infants and increased susceptibility to infection[25]. If you have any of the indicators of low zinc levels, it is worth asking your GP for a blood test.

How can I increase my zinc levels? Zinc-rich foods include red meat, poultry, shellfish (particularly oysters), pulses, nuts, legumes, dairy products. Although wholegrain cereals are rich in zinc, they also contain phytates which can inhibit zinc absorption[26]. Zinc supplements are cheap and readily available; nutritionists recommend supplementing up to 30mg/day to support the immune system, with higher doses during an infection.

COVID-19 patients commonly have low serum zinc levels, which are associated with poorer outcomes.

Patients with COVID-19 had significantly low zinc levels in comparison to healthy controls; low zinc levels were a risk factor for severe COVID-19, additional complications, including severe respiratory distress syndrome, a higher rate of mortality or a longer hospital stay compared to those with normal levels[27,28,29,30,31,32,33,34]. Critically ill patients with COVID-19 and severe acute respiratory distress syndrome have a high prevalence of low serum zinc levels[35].

Zinc supplementation for COVID-19 prevention and treatment. The majority of studies show the effectiveness of zinc in a combination treatment with pharmaceuticals and/or other nutritional supplements[36,37,38,39]. In addition, the FLCCC protocol comprising 30-40mg/day has been successfully used for COVID-19 prevention, with 100mg/day for early outpatient treatment[40]. Others have used similar protocols[41,42,43]. After recovery, do not take more than 30mg/day of zinc.

Why a zinc ionophore may be necessary for zinc utilisation. Uptake of zinc may require an ionophore, a molecule which aids zinc transportation across the cell membrane[44]. This is because zinc cannot pass through the fat-soluble cell membrane without a transporter. The best known zinc ionophores are quercetin and EGCG from green tea[45,46] and the drug chloroquine[47] or hydroxychloroquine[48], which prevent the virus from replicating. Zinc plus hydroxychloroquine reduced mortality, whereas neither alone were effective[49].

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Evidence that zinc is needed for a healthy immune system and can reduce duration and severity of viruses.

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[24] https://patient.info/doctor/zinc-deficiency-excess-and-supplementation-pro#nav-3
[25] https://patient.info/doctor/zinc-deficiency-excess-and-supplementation-pro#nav-3

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[26] https://patient.info/doctor/zinc-deficiency-excess-and-supplementation-pro#nav-3
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Zinc supplementation for COVID-19 prevention and treatment.

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Why a zinc ionophore may be necessary for zinc utilisation.

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