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Can an anti-inflammatory diet be effective in preventing or treating viral respiratory diseases? A systematic narrative review

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Affiliations expand

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uses infections (RVI) such as rhinovirus, coronavirus, influenza virus, and a affect the respiratory and the immune systems. The role of nutrition in the respiratory and immune

systems has been studied in some studies, and its importance is undeniable. In addition, one of the key findings in this disease is high inflammation that affects almost all patients. This systematic narrative review aims to answer the question, "Can an anti-inflammatory diet be effective in preventing or treating viral respiratory diseases?" A systematic review search was used for the articles extraction. All studies published in English from 1999 to 2020 investigating dietary inflammatory conditions and RVI were included. Food items with anti-inflammatory properties were selected based on the definition of the dietary inflammatory index (DII). We used Google Scholar, Pub Med, Scopus, Web of Science, Springer, Science Direct, Directory of Open Access Journals, Elsevier, Taylor and Francis, ProQuest, EBSCO, MEDLINE, and SciELO databases for extracting articles. Keywords were restricted by DII. Based on DII, food items/nutrients are involved in inflammation, some of which have anti-inflammatory and some inflammatory properties. Some foods/nutrients, in addition to their anti-inflammatory properties, have antioxidant, antiviral, and immune-enhancing properties. Considering the immune system's involvement, increased inflammation, and involvement of the pulmonary system in RVI and the remarkable role of the anti-inflammatory foods for counteracting them, it is recommended to use a predominantly anti-inflammatory diet along with prevention/control and treatment protocols. An anti-inflammatory diet (based on DII) includes turmeric, ginger, garlic, onions, saffron, dietary vitamin C, vitamin D, zinc, and omega-3 are recommended to reduce infection symptoms and duration.

Keywords: Antioxidant; Coronavirus; Garlic; Ginger; Respiratory viruses; Turmeric; Zinc.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no competing interests.

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References

1. Barker J., Stevens D., Bloomfield S.F. Spread and prevention of some common viral infections in community facilities and domestic homes. J Appl Microbiol. 2001;91(1):7–21. - PMC - PubMed
2. He F., Deng Y., Li W. Coronavirus Disease 2019 (COVID-19): what we know? J Med Virol. 2020;92(7):719–725. https://onlinelibrary.wiley.com/doi/full/10.1002/jmv.25766 - DOI - PMC - PubMed
3. Report on the epidemiological features of coronavirus disease 2019 (COVID-19) outbreak in the Republic of Korea from January 19 to March 2, 2020. J Kor Med Sci. 2020;35(10):e112. - PMC - PubMed
4. Tian H.Y. [2019-nCoV: new challenges from coronavirus] Zhonghua Yufang Yixue Zazhi. 2020;54:E001. 0. - PubMed
5. Lai C.C., Shihb T.P., Koc W.C., Tang H.J., Hsueh P.R. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): the epidemic and the challenges. Int J Antimicrob Agents. 2020;55(3):105924. - PMC - PubMed

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