



Let food be the medicine, but not for coronavirus: Nutrition and food science, telling myths from facts

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ABSTRACT

The entire globe is facing a dangerous pandemic due to the coronavirus disease (COVID-19). The medical and scientific community is trying to figure out and adopt effective strategies that can lead to (i) preventing virus expansion; (ii) identifying medications for the management of critical care and reducing rates of mortality; and (iii) finally discovering the highly anticipated vaccine. Nutritional interventions have attained considerable scientific evidence in disease prevention and treatment. The main question, “What is the role of nutrition and food science in this scenario?” requires urgent answer as many theories suggesting that specific food or dietary supplements can fight coronavirus infection have received extensive coverage in most popular social media platforms. In this editorial, we focus on some frequent statements on the role of nutrition and food science in the battle against COVID-19, distinguishing between myths and facts. We highlight that social distancing and hygiene precautions are the best practices for reducing the risk of COVID-19 transmission. We further underline the importance of nutrition in its wholistic concept, pointing out the risk of unproven dietary options that could lead individuals to weaken effective precautionary measures.

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There is no room for argument about the critical role of nutrition in the prevention/treatment of several medical conditions such as cardiovascular disease, metabolic conditions, and cancers, especially if it is within the context of a healthy lifestyle.¹ In the same vein, over the past few decades the benefit of the supplementation of vitamin and minerals has been proposed and successively unconfirmed, and this determined a continuous modification of healthy eating guidelines, to the extent that nutritional epidemiology has still not reached a consensus on the matter.

On the other hand, the entire globe is under the grip of an aggressive pandemic due to coronavirus disease (COVID-19)² that to date has caused nearly 1 million infections ranging from mild (about 80%) to severe or critical (about 14% and 6%, respectively), with a 5% global mortality rate. Currently, fatal cases have exceeded 10% in Italy, with the near-collapse of the national health service, despite it being considered one of the world's leading health services. Advanced age and underlying medical conditions predict a worse outcome of patients with COVID-19.

For this reason, the medical and scientific community, as well as clinical researchers, are working on different fronts to figure out and adopt effective strategies that can lead to (i) preventing virus expansion; (ii) identifying medications for the management of critical cases and reducing rates of mortality; and (iii) finally discovering the highly anticipated vaccine. The question "What is the real role of nutrition and food science in this scenario?" is of high relevance taking into account a large number of unproven theories on the preventive and curative

capacity of food against COVID-19 having arisen in the last few weeks. Specific diets and nutrients, as well as vitamin and mineral supplements, have been pumped across most popular social media platforms, with many revealed to be fake. Indeed, many people from the general population have referred to a famous phrase ascribed to Hippocrates in 400 BC emphasizing the importance of nutrition to prevent or cure disease, including COVID-19. Here we discuss the risks for people giving faith to unproven dietary claims from unscientific sources.

MYTH AND FACT

From this perspective, there is a little need to "dot the i's and cross the t's". It is not a matter of nutrition versus pharmacotherapy or any other discipline to demonstrate its superiority. In this editorial, we focus on some popular statements on the role of nutrition and food science in the battle against COVID-19, distinguishing between what is a myth and what is a fact.

Diets and Special Food

Myth #1: Some diets (i.e., ketogenic diet) reinforce the immune system and protect from COVID-19. Moreover, specific foods like mushrooms, ginseng, garlic, and others help in preventing COVID-19 through the same mechanism.

Fact #1: Although there is some limited evidence that certain diets or specific foods and beverages might reinforce the immune system, there is no evidence that any food or dietary pattern protects from COVID-19 infection or limit the contagion risk to others.

Supplements and Natural Health Products

Myth #2: Dietary supplements containing vitamin C and D or minerals (i.e., zinc) or other natural health products prevent, treat, or cure COVID-19.

Fact #2: While zinc supplements fail to show any protective effects,³ there is limited and much-debated evidence that vitamin C or small doses of vitamin D (in vitamin-D deficient individuals) may help prevent acute respiratory tract infections or shorten the duration of symptoms of the common cold.^{4,5} However, these data are neither robust nor specific to COVID-19.

Water Preparations

Myth #3: Gargling with vinegar, lemon juice, or warm water with salt frequently during the day cleans the pharynx and prevents the virus from reaching the lungs.

Fact #3: There is no evidence that gargling with any compound is protective versus COVID-19. On the contrary, some homemade practices may be dehydrating and have exactly the opposite effect.

We think that nothing exceptional concerning diet should be adopted during the COVID-19 pandemic that was not valid before. A healthy lifestyle based on scientifically recognized dietary guidelines such as the *Healthy Eating Plate*,⁶ an appropriate hydration status, regular, moderate physical activity, sufficient rest and sleep, as well as reducing stress, are the best actions to reinforce the immune system and help to fight any potential infection. It is crucial to note that none of these efforts can prevent COVID-19 or its transmission from one individual to another.

Applying the general norms of food safety and hygiene during shopping, preparing, cooking, eating, and conserving food is essential – foremost, proper handwashing limits the spread of COVID-19. In the case where this is not available, especially in public settings, hand sanitizers containing 60–70% alcohol should be used.

In conclusion, strictly adhering to social distancing plus the adoption of recommended hygiene precautions are the best practice for reducing the risk of coronavirus infection. Healthy nutrition has a beneficial role in its wholistic concept; however, considering it in a fragmented way (i.e., diets, specific food, supplements or natural health products) is highly risky. It may result in false expectations and may lead individuals to lessen effective precautionary measures, thereby dangerously increase the risk of getting COVID-19. Last but not least, as health professionals, we should gather qualified information from high-level official sources and raise our voice through campaigns that distinguish between myths and facts. Let us work collaboratively (not substitutively), each in his/her field, to “render to Caesar the things that are Caesar's; and to God the things that are God's.”

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