



Nutrients Suggested and May Support Individuals' Healthy Immune System during COVID-19 Pandemic

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Received: March 25, 2020

Published: April 30, 2020

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In the face of pathogens, some nutrients have been demonstrated to support immunity. A healthy diet, such as micronutrients, protein, and essential fats will health individuals to be more resilient and healthier. For examples, having sufficient vitamin A is associated with immunity to infections and illness. Vitamin C is currently getting a lot of attention in the time of the COVID-19 pandemic, both positive and negative. Some previous studies demonstrated that vitamin C might assist in reduction of symptoms of colds and shorten their illness duration and might assist in preventing the occurrence of colds in individuals prone to higher levels of stress and athletes when regularly taken. Currently, several trials on vitamin C effects and COVID-19 are undergoing in China, such as in Hubei (NCT04264533, ChiCTR2000029768 <http://www.chistr.org.cn/showproj.aspx?proj=49131>), Shaanxi and Hubei (ChiCTR2000029957 <http://www.chictr.org.cn/showproj.aspx?proj=49633>), Hubei and Shaanxi (ChiCTR2000030135 <http://www.chictr.org.cn/showproj.aspx?proj=50002>). Vitamin D is a principal immune regulator and has demonstrated promise for assisting several auto-immune conditions. Vitamin E has immunomodulatory and anti-inflammatory effects. Bioflavonoids from plants can reduce upper-respiratory-tract infections, indicated by previous research. Trial on alpha lipoic acid and COVID-19 is also undergoing in China (ChiCTR2000029851 <http://www.chictr.org.cn/showproj.aspx?proj=49534>).

Other antioxidant-rich foods, such as cacao, rosehips, and grapeseed can improve immunity, antioxidant status and decrease inflammation. Other foods that can boost the immunity include onion (containing vitamins B, C, and E); garlic (containing vitamins B, C, and E, allicin (boosting the white blood cell's response to illness); turmeric (that contains curcumin- having anti-inflammatory effect); oyster (containing rich zinc); live bacteria supplements; eggs (containing more than 20 essential vitamins and minerals, such as selenium); mushrooms (acting as anti-inflammatory, cell-regenerating, and antibacterial agents); ginger (having anti-in-

flammatory, antioxidant, and antibacterial actions to relieve the flu symptoms); green chillies (rich in vitamin C for boosting resistance to infection); Rhodiola rosea (assisting in managing stress and anxiety in humans); and green tea (antioxidant, containing flavonoids assisting block the production of virus-spreading enzymes in the human body).

The immune support shopping list should be as the following: 1) Top 10 vitamin A-rich: beef liver, sweet potato, spinach, carrots, ricotta cheese, cantaloupe, red peppers, mango, eggs, and black-eyed peas; 2) Top 10 vitamin C-rich: red pepper, orange, kiwi, broccoli, strawberries, brussels sprouts, grapefruit, cantaloupe, cabbage and cauliflower; 3) Top 10 vitamin D-rich: cod liver oil, swordfish, tuna fish, orange juice (fortified and 100% juice), milk, yogurt, sardines, beef liver, eggs, and ready-to-eat cereals (whole grain cereals); 4) Top 10 vitamin E-rich: wheat germ, sunflower seeds, almonds, sunflower oil, safflower oil, hazelnuts, peanut butter, peanuts, corn oil, and spinach; 5) Top 10 food sources of zinc (highest to lowest concentration): oysters, beef chuck roast, crab, beef patty, lobster, pork chop, baked beans, chicken, pumpkin seeds, and yogurt. Additionally, the standard "feel-better" foods include banana, applesauce (unsweetened), whole wheat toast, brown rice, whole fruit popsicles, peppermint (ginger or herbal tea), bone broth, yogurt (Greek-high protein), ginger chews, oatmeal (cream of wheat), honey, and smoothies. Nevertheless, a special garlic-containing immunity-boosting food called "Lee Holmes's immune-boosting roasted garlic bisque recipe" is also recommended during the COVID-19 pandemic.

In conclusion, in addition to taking the various boosting-healthy-immune-system foods mentioned above during the COVID-19 pandemic, the individuals should follow the guidance for maintaining a balance diet: 1) eat fruits and veggies, 2) eat smaller meals more frequently and 3) drink plenty of fluids.

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