Improve immunity in times of coronavirus

Eduardo Tosta

Immunologist CRM-DF 1187 Professor Emeritus at the University of Brasilia

There are two ways to protect yourself against the coronavirus: avoiding infection (contagion) or preventing the infection from becoming a disease, especially a serious and potentially lethal disease. We will be free of infection if we do not have contact with infected people, using widely publicized procedures. In the event of contagion, three situations may occur: (1) asymptomatic infection (without disease); (2) mild or moderate disease; (3) serious and potentially lethal disease. It is the health status of the immune system that will determine how the infection progresses. If it is functioning properly, the infection will evolve without disease or with mild illness, as with the vast majority of cases; if your functioning is compromised, the tendency is for the infection to progress to moderate or severe illness. Thus, our commitment to maintaining immune health is essential, especially since we do not yet have a vaccine or previous immunity, as it is a new virus. How to help maintain and strengthen immune health?

1. Avoid fear and panic: they cause anxiety, which increases the production of cortisol and other immunity-depressing substances.

2. Reduce anxiety: The most practical, quick, effective and side-free way to reduce anxiety is controlled breathing. Practice it many times a day: sit with your back straight, close your eyes and mouth, breathe slowly, smoothly and as deeply as possible for a few minutes, with full attention when entering and leaving the air. In addition to its instantaneous and powerful anxiolytic action, controlled breathing substantially increases the body's oxygenation and, as a result, improves the functioning of all cells, including those of the immune system.

3. Maintain a regular sleep regime: a poor night's sleep (quantity or quality) is enough to impair immunity.

4. Reduce the consumption of alcohol, tobacco and drugs: everyone can compromise immunity.

5. Adequate hydration: Between 55% and 60% of our body is made up of water: it is essential for the functioning of all cells and organs, including those responsible for the defense against infectious agents. Inadequate hydration dries out mucous membranes and makes them vulnerable to infections, compromises the functions of the immune system, stimulates inflammation, overloads the heart and kidneys, compromises the cognitive functions of the brain and causes fatigue and fainting. Daily water losses through urine, sweat, evaporation through the skin, breathing and feces must be replaced by pure water, or water with lemon, in volumes of 2.0 liters / day (women) and 2.5 liters / day (men), or about 30 ml / kg / day. Careful hydration is especially important in the elderly since in this population the feeling of thirst is reduced.

6. Supplementation of vitamins, minerals and others: The maintenance of the integrity and functionality of the immune system depends on adequate levels of vitamins and minerals, especially in the elderly population, where frequent deficiencies occur. In addition, several vitamins and minerals have a proven antiviral action, although they have not yet been tested against COVID-19. It should be remembered that such compounds in excess can have harmful health effects

> Vitamin A: acts against the measles virus, HIV, avian coronavirus.

> B vitamins: act against the MERS-CoV coronavirus.

> Vitamin C: acts against several viruses responsible for human respiratory infections and avian coronavirus.

> Vitamin D: acts against bovine coronavirus.

> Vitamin E: acts against coxsackievirus and bovine coronavirus.

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> Selenium: acts against the influenza virus, avian coronavirus and blocks viral mutations.

> Zinc: acts against measles virus and the SARS-CoV coronavirus. > Iron: blocks viral mutations.

> Omega-3 fatty acids: acts against the influenza virus and HIV. Zhang L, Liu Y (2020). Potential interventions for novel coronavirus in China: A systematic review. Journal of Medical Virology DOI: 10.1002 / jmv.25707

7. Immunity-strengthening foods with antimicrobial activity:

> Lemon: Very rich in vitamins (A, B1, B2, B3, B6, B9, C and E), mineral salts (iron, potassium, calcium, magnesium, sodium, phosphorus, boron, manganese, copper, fluorine, zinc and molybdenum) and bioactive compounds (mainly in the bark: hesperidin, eriocitrin, diosmin and roifolina). Lemon has a proven immunity-regulating (immunomodulatory), anti-inflammatory, antioxidant, analgesic, anxiolytic, anti-allergic, antibacterial, anti-fungal and antiviral action (roifoline blocks the activity of the SARS-CoV coronavirus and hesperidin and diosmin have the potential to act about COVID-19). The lemon should be consumed as juice and its grated peel (after being well washed) used in various savory and sweet dishes.

> Turmeric (turmeric): Its main active compound, curcumin, has a powerful immunomodulatory, anti-inflammatory, antioxidant, neuroprotective, cardioprotective, nephroprotective, pneumoprotective (lung), hepatoprotective, antitumor, antibacterial, antifungal and antifungal properties (antiparasitic and anti-parasitic and anti-parasitic and anti-parasitic and anti-parasitic properties. hepatitis B and C, herpes simplex, coxsackie B3, HIV, papilloma, Japanese encephalitis and SARS-CoV coronavirus).

> Oats: It is a source of high quality proteins, minerals (calcium and iron) and vitamins (B and E) and two important bioactive compounds: beta glucan and avenantramide. Beta glucan is a powerful immunostimulating compound and it increases resistance against infections by bacteria, viruses, fungi and parasites and avenantramide has anti-inflammatory and antioxidant activity.

> Ginger: Gingerol and the other 168 bioactive compounds in ginger have immunomodulatory, anti-inflammatory, antioxidant, analgesic, neuroprotective, cardioprotective, nephroprotective, pneumoprotective, gastroprotective, hepatoprotective, anti-tumor, antibacterial, antifungal and

anti-parasitic properties and anti-parasitic and anti-viral properties. dengue and, perhaps, COVID-19).

> Açaí: Velutin and other açaí flavonoid, anthocyanins and carotenoid compounds have immunomodulatory, anti-inflammatory, antioxidant, analgesic, hepatoprotective, nephroprotective, pneumoprotective, cardioprotective, anti-lipid, neuroprotective, antidiabetic, antidepressant, antidepressant, antidepressant and antidepressant properties. . Possible antiviral activity has not yet been tested.

> Flaxseed: Lignans, the main bioactive compounds in flaxseed, have immunomodulatory, anti-inflammatory, antioxidant, antibacterial and antifungal activity. Herbacetin, another bioactive compound, has possible activity against the MERS-CoV coronavirus. In order to destroy the possible toxic effects of flax seeds, it is convenient to heat them in a microwave oven at 100oC for 1 minute before consumption.

> Broccoli: Rich in vitamins (E, C, K, B, A, carotenoids), mineral salts (selenium, calcium, iron, zinc) and bioactive compounds with immunomodulatory, anti-inflammatory, antioxidant, cardioprotective, antitumor, antibacterial activities, antifungal and antiviral (influenza, respiratory syncytial virus)

> Grape ink, peanut: The two foods have one characteristic in common: they are rich in resveratrol, a bioactive compound with immunomodulatory, anti-inflammatory, antioxidant, neuroprotective, cardioprotective, nephroprotective, pneumoprotective, hepatoprotective, gastroprotective, enteroprotective, enteroprotective, myoprotective properties. (muscles), antitumor, antibacterial, antifungal and antiviral (herpes simplex, influenza, varicella-zoster, cytomegalovirus, HIV, polyoma and coronavirus MERS-CoV). Resveratrol can be consumed as grape juice, red wine, raisin and, mainly, grape flour, which is also rich in anthocyanins from seeds.

> Honey: In addition to a rich source of vitamins (B2, B3, B5, B6, B9 and C), mineral salts (potassium, sodium, calcium, iron, phosphorus and magnesium) and hydrogen peroxide (hydrogen peroxide), honey has several bioactive compounds, especially quercetin and myricetin, responsible for their immunomodulatory (mainly immunostimulating), anti-inflammatory, antioxidant, antidiabetic, antibacterial (including antibiotic-resistant bacteria), antifungal (candidiasis) and antiviral (rubella, herpes and respiratory virus, including the MERS-CoV coronavirus).

> Soy: It has isoflavones, such as genistein and daidzein, with immunomodulatory, cardioprotective, osteoprotective (osteoporosis), antidepressant, antitumor, antibacterial, antifungal and antiviral activities (rotavirus, herpes simplex, adenovirus, HIV, respiratory viruses, including coronavirus SARS -CoV and MERS-CoV).

> Kefir: It is milk fermented at home by a complex community of lactobacilli and probiotic yeasts, which produce their own prebiotic food (kefiran). It has potent immunomodulatory activity (increases anti-infective, anti-tumor immunity, controls allergies, suppresses autoimmunity), anti-inflammatory, anti-toxic, antibacterial, antifungal and antiviral (hepatitis C, HTLV-1, rotavirus, herpesvirus, avian influenza).

All the measures proposed here have a proven scientific basis, are free from undesirable side effects, as long as they are wisely adopted, and can compete to protect not only the coronavirus, but any other infectious agent.

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