



NUTRITIONAL GUIDELINES TO STRENGTHEN THE IMMUNE SYSTEM AND FEEDING WITH CONSCIOUSNESS



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INTRODUCTION

CAN CORONAVIRUS BE TRANSMITTED THROUGH FOOD?

No, cases of transmission of COVID-19 through food have been reported and there is therefore no evidence that food imported into the European Union (EU), abiding by the applicable public and animal health laws, poses a health risk to EU citizens in relation to COVID-19.

Since the first cases of COVID-19 disease were related to direct exposure to the seafood wholesale markets in Wuhan's Huanan, China, it was assumed that animal-to-human transmission was present. However, subsequent cases have not been associated with this exposure mechanism. (1)

The main mode of transmission of COVID-19 is human to human transmission. (2)

VIRAL TRANSMISSION

The virus is commonly transmitted:

- **Directly**, through contact with bodily fluids with someone who carries the virus (for example, droplets from coughing or sneezing);
- **Indirectly**, through contact with surfaces on which an infected person has coughed or sneezed (including food, if not completely cooked just before being eaten).

Transmission may also be airborne in the event of prolonged exposure to high viral concentrations in enclosed spaces. The analysis of data regarding the spread of SARS-CoV-2 in China, however, seems to indicate that human to human transmission is the main mode of transmission. The spread, in fact, is limited mainly to family members, health workers, and other close contacts of infected patients. (1)

HYGIENE RULES

1. Wash your hands well following the instructions disclosed by WHO

- Before handling food
- Before handling cooked or ready-to-eat foods
- After handling or preparing raw food
- After handling waste
- After cleaning
- After using the bathroom
- After blowing your nose, sneezing or coughing
- After eating, drinking or smoking
- After handling money (3; 4)





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2. Cooked food completely

It is unlikely that the viral infection of COVID-19 is transmitted by food unless an infected person has contaminated it and the food is not properly cooked. From previous information on viral infection (SARS), cooking the food for at least 30 minutes at 60 ° C is enough. (5)

3. Choose food that was safely prepared

4. Consume cooked food immediately

5. Avoid contact between raw food and cooked food

6. Reheat cooked food completely

7. Disinfect surfaces properly

Comparative studies with previous types of Coronavirus (it is not guaranteed that this applies to SARS-CoV-2), have found that human Coronaviruses can remain infectious on inanimate surfaces for a maximum of 9 days. Surface disinfectant with 0.1% sodium hypochlorite (bleach or viridine diluted in water) or 62–71% ethanol can significantly reduce the infectivity of Coronavirus on surfaces within 1 minute of exposure. A similar effect can be expected with SARS-CoV-2. (6) A recent preliminary publication suggests that Coronavirus can remain active for up to 4 hours on copper materials, 24 on cardboard, 48 on steel and 72 on plastic. (7)

8. Protect food

Protect food also from insects, rodents or other small animals. (8)

9. Avoid handling money and food without first washing your hands or changing your gloves

If you handle money, use gloves that will not be used to handle food; or wash your hands before and after handling money and food.

10. Do not touch your face with your hands: eyes, nose, or mouth

11. Do not leave food in the sun

Heat promotes the proliferation of microorganisms.

In addition, the heating of some materials, including plastic, produces harmful substances

12. Do not wear jewelry

Rings, bracelets or cosmetic products (nail polish, perfumes, creams) can be source of contamination or an obstacle to sanitization; especially if you are handling food for others.

13. Avoid close contact with anyone showing symptoms of respiratory diseases

For example, symptoms like fever, coughing and sneezing. (4)



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NUTRIENTS AND THE IMMUNE SYSTEM

1. Diet

This daily diet supplies the immune system with all the nutrients it needs to stay active

- a. **Protein.** We recommend 0.8 grams per kg of body weight in adults (0.36 grams of protein per pound of body weight) and 0.9 - 1 g per kg of weight (0.4 – 0.45 grams of protein per pound of body weight) after 65 years. (9; 10)
- b. **Essential omega-3 and omega-6 fatty acids.** The recommended daily dose of polyunsaturated fatty acids (omega-3) is 0.5 g of eicosapentaenoic acid (EPA) + docosahexaenoic acid (DHA). Avoid higher and prolonged doses, as they can have the opposite effect. This amount is easily reached by eating fish twice a week and extra virgin olive oil with each meal, as well as around 20 g of walnuts daily. (11; 12)
- c. **Sugars.** It is important to have adequate blood sugar levels (although there are still few scientific studies on this) and, therefore, it is plausible that severe and long-term caloric restriction may lead to immune system deficiencies, especially in the elderly. (13-15)
- d. **Micronutrients.** Vitamins and minerals with more scientific evidence to support their effects on the immune system are Vitamin C, D and Zinc. (16)
Even iron, copper and selenium, with different and very precise mechanisms, help us to have an efficient immune system.
 - i. **Zinc** is mainly found in fish, cereals, legumes (beans, lentils, chickpeas), dried fruit (almonds, pine nuts, cashews), seeds (pumpkin, sesame and sunflower), mushrooms, and cocoa.
 - ii. **Iron** introduced in the diet is divided into heme iron and non-heme iron. The former is present in animal products and is part of the heme group, molecules that have an iron atom and can bind oxygen and transport it to the tissues. Heme iron is easily absorbed by the body and is found in the liver, horse and red meat, as well as in sea bass, clams, anchovies, and seafood in general. (17)
Non-heme iron must first be reduced by an antioxidant agent, such as vitamin C (ascorbic acid) to be easily absorbed. The legumes richest in iron are lentils and beans. Dried plums, raisins and dried apricots, cashews and pistachios are also rich in iron, and can be paired with foods rich in vitamin C, such as citrus fruits, kiwis, lemon juice, tomatoes, raw peppers and arugula. On the contrary, some substances inhibit the absorption of non-heme iron and consuming the following foods could reduce its absorption: tea, coffee, chocolate, yogurt, and cheeses, or foods rich in calcium, including calcium water.
 - iii. **Copper** is mainly found in oysters, nuts, oilseeds, dark chocolate, whole grains and meat. (18)
 - iv. **Selenium** rich foods are cereals, fish, meat, and dairy products. (19)



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- v. **Retinoic acid**, a metabolite of vitamin A found in carrots, spinach, peppers, squash, beetroot, sweet potatoes, watercress, chicory, celery, persimmons and apricots, and eggs, but also in spices such as paprika. (20)
- vi. **Vitamin C** is present in raw peppers, raw tomatoes, citrus fruits, kiwis, strawberries, raw red cabbage, raw broccoli, lettuce, arugula, and black currant. (21)
- vii. **Vitamin D** is abundant in fish such as herring, mackerel, sea bass, anchovies, mackerel, red mullet, mushrooms, and eggs. (22)
- viii. **Vitamin E** is found in sunflower seeds, almonds, hazelnuts, avocado, chicory, shrimps, blackberries, chestnuts, extra virgin olive oil, and olives. (23)
- ix. **B-Vitamins. Vitamin B-12**, found mainly in fish products such as clams, herrings, trout, mackerel, salmon, as well as in eggs; **Vitamin B6**: fish, spinach, potatoes, legumes, fruit (excluding citrus fruits); **Vitamin B9**: asparagus, beets, fresh broad beans, agretti, green beans, artichokes, endive or escarole, cabbage, cauliflower, and fennel. (24)

2. Supplementation

During the season in which we are at risk of being infected with the flu or corona virus season taking a multimineral multivitamin daily and an omega-3 supplement every 2-3 days may serve as protective factors, considering that most people have deficiencies in vitamins or minerals, which can contribute to a reduced immune system function. This must be done in addition to a complete and balanced diet and NOT as an alternative. A varied, well-balanced diet ensures an adequate supply of micronutrients, vitamins, and minerals, and supports the immune system. (25; 26)

LIFESTYLE AND IMMUNE SYSTEM

1. Exercise

Staying active can support the immune system. (27) but excessive and strenuous exercise may have the opposite effects.

2. Adequate weight

Maintain or reach an adequate weight and avoid accumulations of fat, especially in the abdominal area, since immune cells are present within the adipose tissue. In overweight or obese individuals, this excess tissue produces inflammatory mediators and chronic inflammation, and can compromise the immune system in the long run. (28-31)



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FONDAZIONE VALTER LONGO ONLUS

A non-profit organization founded by Professor Valter Longo.

Fondazione Valter Longo Onlus was established in 2017 by Professor Valter Longo - Director of the Oncology and Longevity Program of the IFOM (Firc Institute of Molecular Oncology) in Milan and Director of the Longevity Institute of the University of Southern California (USC) Davis School of Gerontology in Los Angeles - known worldwide for inventing and studying the

Fasting Mimicking Diet and for his international bestseller "The Longevity Diet", translated into 14 languages with over 500 thousand copies sold in Italy and the USA.

Professor Valter Longo was named by Time magazine one of the 50 most influential people in Healthcare of 2018. His research focuses on the genetic mechanisms underlying aging, and strives to find new therapeutic strategies to prevent and treat diseases of aging, such as cancer.

Fondazione Valter Longo Onlus promotes healthy longevity through education about nutrition and adopting a correct lifestyle in order to live better, slow down aging and the onset of age-related diseases including diabetes, obesity, cancer, cardiovascular diseases, autoimmune diseases like Multiple Sclerosis, and neurodegenerative diseases like Alzheimer's. Its overarching goal is to give children and adults the opportunity to live a long and healthy life.

Fondazione Valter Longo Onlus focuses on:

1. **Health care for all patients** and, in particular, for those who suffer from serious health problems and who are in a difficult financial situation;
2. **Nutrition education and awareness for children, young people and adults**, and
3. **Support for scientific research in the field of prevention** and therapies that promote a long and healthy life.

Fondazione Valter Longo Onlus strongly believes in the importance of having a healthy lifestyle, and optimal physical and mental well-being, which are essential for a peaceful and fulfilling life. It offers resources at a low-cost to everyone, in particular to those who suffer from various diseases and are in a critical mental, physical, or economic condition.

Since November 2019, Fondazione Valter Longo has been registered in the Single Registry of the O.N.L.U.S. (in Italy) and is subject to authorization by the competent Revenue Agency pursuant to Legislative Decree from December 4th, 1997 n. 460.

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