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Dairy's role in supporting a healthy immune system

Scientific excellence
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While no foods or dietary supplements can prevent COVID-19 infection, evidence shows that a healthy diet and good nutrition play a significant role in building a strong and healthy immune system. It has been known for a long time that undernutrition and malnutrition can have major impacts on the immune system and increase the risk of infectionsⁱ.

It is also known that the activation of the immune system increases the demand for energy and certain nutrients, affecting nutritional status.

The Food and Agriculture Organization (FAO) recommends maintaining a healthy diet, in line with national food-based dietary guidelines (FBDG) to support an immune system that works optimallyⁱⁱ. FBDG should provide context-specific advice and principles on healthy diets and lifestyles, which are based on sound evidence, and respond to a country's public health and nutrition priorities, food production and consumption patterns, sociocultural influences, food composition data, and accessibility, among other factorsⁱⁱⁱ. Following these, it is encouraged to consume a variety of foods within each food group and across all the food groups to ensure adequate intake of important nutrients.

A review of countries reporting in the FAO dietary guidelines database shows that nearly all of them advise consumption of milk and/or dairy foods^{iv}. This is reflective of the overwhelming scientific evidence that dairy is an important component of a healthy dietary pattern and associated with positive health outcomes^{v,vi}.

Not only do dairy foods play an integral role in supporting overall health, but the wide variety, availability and affordability of dairy foods makes it possible to include them in a variety of healthy eating patterns.

Although the relationship between dairy product consumption and immunity is still an area of active research, the available evidence suggests that dairy products through their nutrient richness can support a healthy immune system. These multiple nutrients found in milk and dairy are important for optimal immune function^{vii}:

- High quality protein¹
- Vitamin A
- Zinc
- Selenium
- Vitamin B12
- Vitamin D – present in fortified milks

In addition to the role of dairy foods in providing key nutrients that are important for optimal immune system function, many fermented dairy products contain active bacterial cultures such as probiotics, which may support healthy gut microbiota^{viii}. The gut microbiome plays an essential role in building and maintaining the immune system, both at the intestinal barrier^{ix} and systemically.

The intestinal barrier regulates immune homeostasis and secretes factors, such as immunoglobulins (Ig), macrophages and natural killer cells, into the intestinal lumen to stop pathogens attaching to or invading the mucosal/intestinal tissues. Studies have shown that some food components including probiotics, prebiotics or fibers, significantly influence the immune system – providing a number of benefits by altering the microbiota colonizing of the gut microbiome^x.

Wholesome dairy products have an important role in high quality, healthy dietary patterns and are recommended by FBDGs across the globe. With regards to immunity, the nutrients in dairy have an important role. Emerging evidence on dairy and immunity suggests that consumption of nutrient-dense dairy food may be beneficial. However more research is needed to confirm the effects of milk and dairy products on the overall immune system.

Further reading on consuming dairy in times of COVID-19 can be accessed on [IDF website](#)

¹Dairy protein is recognized to be a high-quality source, as a supply of essential amino acids. This makes dairy an ideal means to meet the increased demands from an immune response.



References

ⁱ Bourke, C.D., et Al. (2016) Prendergast, Immune Dysfunction as a Cause and Consequence of Malnutrition. Trends Immunol, 37(6): p. 386-398.

ⁱⁱ <http://www.fao.org/3/ca8380en/CA8380EN.pdf>

ⁱⁱⁱ <http://www.fao.org/nutrition/education/food-dietary-guidelines/background/en/>

^{iv} <http://www.fao.org/nutrition/education/food-dietary-guidelines/background/en/> (accessed on 4 April 2020)

^v Thorning TK et Al. (2016). Milk and dairy products: good or bad for human health? An assessment of the totality of scientific evidence. Food Nutr Res, 60:10.3402/fnr.v60.32527

^{vi} Gil A. et Al. (2019). Introduction and executive summary of the supplement, role of milk and dairy products in health and prevention of noncommunicable chronic diseases: a series of systematic reviews. Adv Nutr, 10:S67-S73

^{vii} World Cancer Research Fund International. 2020. Links between coronavirus, nutrition and the immune system. Available at: <https://www.wcrf.org/int/blog/articles/2020/04/links-between-coronavirus-nutrition-and-immune-system> (accessed on 14 May 2020)

^{viii} Dairy Nutrition: <https://www.dairynutrition.ca/scientific-evidence/roles-on-certain-health-conditions/probiotic-milk-products-and-digestive-health> [Accessed 4 April 2020]

^{ix} Soustre Y and Le Barillec K. (2013) Questions sur produits laitiers & immunité. Cniel, n°49 (revision 2020)

^x Frei R, et Al. (2015). Prebiotics, Probiotics, Synbiotics, and the Immune System: Experimental Data and Clinical Evidence. Curr Opin Gastroenterol;31(2):153-8

