

Micronutrients that Support Immunity- Topic of the Month

DECEMBER 7, 2022

Our Immune System

We all have a superhero inside of us! Our immune system is the body's defender against foreign invaders. It works hard to fight against bacteria, viruses, and anything else that is attacking us from within. A strong immune system is the first line of defense in maintaining our health. Eating a well-balanced diet filled with a rainbow of colors from various fruits and vegetables is a great step to staying healthy, but what nutrients we eat will support our body's ability to fight sickness during cold and flu season?

This article will focus on some core micronutrients that have been found to be beneficial in supporting the immune system; examples include vitamins C and D, B vitamins, zinc, and iron. It is important to remember, however, that including these dietary nutrients alone won't keep you healthy! Getting and staying healthy also requires lifestyle habits that promote health, such as getting adequate sleep, staying active and hydrated, minimizing stress levels, and attending regular preventative care visits.

Sources of Micronutrients

Let's take a look at a few of the immune strengthening micronutrients and their various food sources.

Vitamin C

Vitamin C is a water-soluble vitamin that supports the immune response and has been shown to limit the development of bacteria. Sources of vitamin C include citrus fruits, berries, melons, tomatoes, bell pepper, and broccoli.

Vitamin D

Vitamin D is a hormone made by the body in response to sunlight. It is a fat-soluble vitamin that can assist with controlling infection and inflammation in the body. In Minnesota, the sun is not strong enough to help our bodies make adequate vitamin D. Vitamin D can be found naturally in very few foods; some sources include fatty fish, egg yolk, and a select group of fortified foods (soy beverage, breakfast cereal, and orange juice). For most people, the best way to meet their vitamin D needs is through a dietary supplement. See the nutrition education card [Getting More: Vitamin D](#) for supplementation information.

Want to learn more about vitamin D? Read the [Vitamin D: Topic of the Month](#).

MICRONUTRIENTS THAT SUPPORT IMMUNITY- TOPIC OF THE MONTH

B Vitamins

There are eight B vitamins that are collectively called B complex vitamins: B1 (thiamin), B2 (riboflavin), B3 (niacin), B5 (pantothenic acid), B6 (pyridoxine), B7 (biotin), B9 (folate [folic acid]), and B12 (cobalamin). The B vitamins play a role in immune health by supporting multiple body functions including cell growth, energy production, and oxygen transportation. Some good sources of B vitamins are salmon, leafy greens (spinach, collard or turnip greens, romaine), liver and other organ meats, beef, legumes, and fortified breakfast cereal.

Zinc

Zinc plays a central role in protecting the integrity of the immune system, supporting growth and functioning. It is an essential trace element whose sources include animal products, whole grains, wheat germs, beans, nuts and seeds, and tofu.

Iron

Iron is a fundamental element that plays a role in the development of the immune system. It supports immune cell creation and maturation. Sources of iron are both animal and plant-based, including meats, seafood, beans, nuts and seeds, spinach, and soy products.

During critical periods of their life, certain populations may need iron supplementation, such as pregnant women, some infants, and those with an iron deficiency. Read the [Eating More Iron](#) nutrition education card for more information on iron.

It is important to remember that these micronutrients are not exclusive in supporting the immune system. Eating a diet rich in a variety of macro and micronutrients is essential in maintaining one's health.

Vitamin Supplementation

Getting the best source of nutrients is easily met through eating a variety of nutritious foods. Deficiencies of certain vitamins and minerals can actually decrease the functioning of the immune system. For those that choose not to or cannot eat certain foods or food groups, vitamin and mineral supplementation is an option to fill in the gaps. Participants can typically meet their supplemental needs with the *appropriate amount* of a recommended daily multivitamin. It is important to avoid “megadosing” on any one specific vitamin or mineral as there are risks associated with higher levels of intake.

WIC can give participants the information they need to make an informed choice about supplemental vitamin and mineral intake. WIC staff may encourage supplementation of vitamin D for all participants ([Getting More: Vitamin D](#)). For pregnant women, iron, folic acid, and iodine ([Prenatal Vitamins](#)) may need to be supplemented. Finally, folic acid is recommended for all women of childbearing age ([Stay Healthy](#)). Refer participants to their health care provider when specific brand recommendations are requested.

U.C. Davis Health created this quick video to reinforce the importance of eating healthy and what we need to know about supplementation: [Nutrition and COVID-19 - Tips to Boost Your Immune System](#).

Following are some tips to offer participants that may support a healthy immune system.

Tips to Support Immune Health

- Eat a balanced diet with a variety of fruits, vegetables, protein and iron rich foods, whole grains, and lots of water to stay hydrated.
- Eat a balanced diet with a variety of fruits, vegetables, protein and iron rich foods, whole grains, and lots of water to stay hydrated.
- Stay active with 150 minutes of physical activity spread throughout the week.
- Get a good night's sleep; aim for 7-8 hours of sleep every night.
- Limit alcoholic beverages and avoid tobacco intake.
- Work to reduce/manage stress levels; try meditation, journaling, or simply talking to supportive friends or family.
- Stay on top of your health; reach out to your health care provider if you have any health concerns.

Have an idea for a Topic of the Month? Email Carole.Kelnhofer@state.mn.us.

Resources

[Nutrition and Immunity](#) – Harvard T.H. Chan, School of Public Health, The Nutrition Source.

[Exploring the Immune-Boosting Functions of Vitamins and Minerals as Nutritional Food Bioactive Compounds: A Comprehensive Review](#) -Mitra S, Paul S, Roy S, Sutradhar H, Bin Emran T, Nainu F, Khandaker MU, Almalki M, Wilairatana P, Mubarak MS. Molecules. 2022 Jan 16;27(2):555. doi: 10.3390/molecules27020555. PMID: 35056870; PMCID: PMC8779769.

[How to Keep Your Immune System Healthy](#) – Academy of Nutrition and Dietetics, eatright.org, January 21, 2022.

[Boosting Immunity: Optimal Nutrition for a Healthy Immune System](#) – Today's Dietitian, January 2022.

Reference – Complete Listing of Hyperlinks

[Getting More: Vitamin D](#)

(<https://www.health.state.mn.us/docs/people/wic/nutrition/english/genvitamind.pdf>)

[Vitamin D- Topic of the Month](#)

(<https://www.health.state.mn.us/docs/people/wic/localagency/wedupdate/2022/topic/0302to picmonth.pdf>)

[Eating More Iron](#)

(<https://www.health.state.mn.us/docs/people/wic/nutrition/english/geniron.pdf>)

MICRONUTRIENTS THAT SUPPORT IMMUNITY- TOPIC OF THE MONTH

Prenatal Vitamins

(<https://www.health.state.mn.us/docs/people/wic/nutrition/english/pgprenatalvits.pdf>)

Stay Healthy

(<https://www.health.state.mn.us/docs/people/wic/nutrition/english/genstayhealthy.pdf>)

Nutrition and COVID-19 - Tips to Boost Your Immune System

(<https://www.youtube.com/watch?v=SQTF60lp8Uo>)

Nutrition and Immunity (<https://www.hsph.harvard.edu/nutritionsource/nutrition-and-immunity/>)

Exploring the Immune-Boosting Functions of Vitamins and Minerals as Nutritional Food Bioactive Compounds: A Comprehensive Review

(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8779769/>)

How to Keep Your Immune System Healthy

(<https://www.eatright.org/health/wellness/preventing-illness/how-to-keep-your-immune-system-healthy>)

Boosting Immunity: Optimal Nutrition for a Healthy Immune System

(<https://www.todaysdietitian.com/newarchives/0122p12.shtml>)

Minnesota Department of Health - WIC Program, 85 E 7th Place, PO BOX 64882, ST PAUL MN 55164-0882; 1-800-657-3942, health.wic@state.mn.us, www.health.state.mn.us; to obtain this information in a different format, call: 1-800-657-3942.