ImmuneFunction-Consumer

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Dietary Supplements for Immune Function and Infectious Diseases  
Fact Sheet for Consumers  
  
This is a general overview. For more in-depth information, see our health professional fact sheet.  
  
How does your immune system work?  
Your immune system is made up of cells, tissues, and organs that help fight viruses, bacteria, and other germs that cause infections and other diseases. For example, your skin helps prevent germs from getting inside your body. Cells that line your digestive tract also help protect against harmful germs that cause diseases. White blood cells try to destroy substances they recognize as foreign to your body. Some white blood cells also recognize germs they have been exposed to before and develop antibodies to defend against them in the future.  
  
What do we know about specific dietary supplement ingredients and immune function?  
Your immune system needs certain vitamins and minerals to work properly. These include vitamin C, vitamin D, and zinc. Herbal supplements, probiotics, and other dietary supplement ingredients might also affect your immune system.  
  
Eating a variety of nutritious foods can give you enough vitamins, minerals, and other nutrients for a healthy immune system. However, you might wonder whether taking certain dietary supplements can improve your body s immune system and its ability to fight infections.  
  
This fact sheet describes what we know about the effectiveness and safety of common vitamins, minerals, and other dietary supplement ingredients that might affect immune function.  
  
Dietary supplement ingredients are presented in each section in alphabetical order.  
  
The health professional version of this fact sheet includes more details and references to the scientific literature.  
  
Vitamins and Minerals  
Getting enough vitamins and minerals through the foods and beverages you consume is important for a healthy immune system. It s especially important to get enough of vitamins A, B6, B12, C, D, E, and K as well as folate, copper, iodine, iron, magnesium, selenium, and zinc.  
  
If your diet doesn t include adequate amounts of certain vitamins and minerals, your immune system will not be able to function as well as it could, you might be more likely to get infections, and you might not recover as well. If your health care provider determines that you are not getting enough of a specific nutrient, vitamin and mineral supplements can help increase intakes to recommended amounts. In most cases, however, if you don t have a deficiency, increasing your intake of vitamins and minerals through dietary supplements doesn t help prevent infections or help you recover from them any faster.  
  
Vitamins  
Vitamin A  
Vitamin A is an essential nutrient found in many foods. It exists in two different forms:  
  
Preformed vitamin A is found in fish, organ meats (such as liver), dairy products, and eggs.  
Provitamin A carotenoids are turned into vitamin A by your body. They are found in fruits, vegetables, and other plant-based products. The most common provitamin A carotenoid in foods and dietary supplements is beta-carotene.  
Vitamin A is important for healthy immune function as well as vision, reproduction, growth, and development.  
  
Vitamin A deficiency is rare in the United States, but it is common in many low- and middle-income countries.  
  
The recommended daily amount (known as Recommended Dietary Allowance or RDA) ranges from 300 to 1,200 microgram (mcg) retinol activity equivalents (RAE) for infants, children, and teens, depending on age, and from 700 to 1,300 mcg RAE for adults.  
  
Does it work?  
Diarrhea in children  
Children with a vitamin A deficiency are more likely to get diarrhea caused by germs. These children also have a higher chance of dying of diarrhea, especially in sub-Saharan Africa and south Asia.  
  
Research suggests that vitamin A supplements lower the risk and severity of diarrhea in children in low- and middle-income countries. However, vitamin A supplementation might not help very young infants in these countries.  
  
HIV infection  
HIV infection can decrease your appetite and weaken your body s ability to use nutrients from food. HIV can also increase the risk of related health problems, such as diarrhea and respiratory diseases.  
  
It s not clear if vitamin A supplements lower the risk of spreading HIV or keep the disease from getting worse. Some studies in young children with HIV have found that vitamin A supplements help lower the risk of death. However, it s not clear whether vitamin A supplements affect the risk of diarrhea or respiratory infections in young children with HIV. Other studies in adults with HIV have found that vitamin A supplements do not improve immune function.  
  
Research in pregnant people with HIV has found that vitamin A supplements do not help reduce the chance of passing HIV from mother to infant. However, one study found that pregnant people with HIV who took vitamin A were more likely to carry their babies to full-term.  
  
Measles in children  
In low- and middle-income countries where vitamin A deficiency is common, children with measles are more likely to have severe symptoms and may die from the disease. In these children, vitamin A supplements might help prevent measles, but it s unclear whether they lower the risk of dying from measles.  
  
Pneumonia and other respiratory infections in children  
Children who don t get enough vitamin A might have a higher risk of respiratory infections. However, it s not clear whether taking vitamin A supplements affects the risk or severity of pneumonia and other respiratory infections. Some studies in young children with pneumonia have found that vitamin A supplements shorten the length of time children need to be hospitalized and decrease the number of days they have symptoms (such as fever and cough). However, other studies in children have found that vitamin A supplements don t lower the risk of getting or dying from pneumonia or other respiratory infections. In addition, some research suggests that taking higher than recommended doses of vitamin A supplements might increase the risk of respiratory infections in children who already get enough nutrients from the foods they eat.  
Is it safe?  
Preformed vitamin A is safe at daily intakes up to 600 to 2,800 mcg for infants, children, and teens, depending on age, and up to 3,000 mcg for adults. There are no upper limits for beta-carotene and other forms of provitamin A.  
  
Getting too much preformed vitamin A can cause severe headache, blurred vision, nausea, dizziness, muscle aches, and problems with coordination. In severe cases, getting too much preformed vitamin A can even lead to coma and death.  
  
If you are pregnant, taking too much preformed vitamin A can cause birth defects, including abnormal eyes, skull, lungs, and heart. If you are or might be pregnant or breastfeeding, you should not take high-dose supplements of preformed vitamin A.  
  
High intakes of beta-carotene (provitamin A) do not cause the same problems as preformed vitamin A. Consuming high amounts of beta-carotene can turn the skin yellow-orange, but this condition is harmless and goes away when you eat less of it. However, several studies have shown that smokers, former smokers, and people exposed to asbestos who take high-dose beta-carotene supplements have a higher risk of lung cancer and death.  
  
Vitamin A supplements might interact with some medications such as orlistat (used for weight loss), acitretin (used to treat psoriasis), and bexarotene (used to treat the skin effects of T-cell lymphoma).  
  
More information about vitamin A is available in the ODS consumer fact sheet on vitamin A.  
  
Vitamin C  
Vitamin C is an essential nutrient found in citrus fruits and many other fruits and vegetables. Vitamin C is an antioxidant and is important for healthy immune function. The body also needs vitamin C to make collagen.  
  
The RDA ranges from 15 to 115 milligrams (mg) for infants, children, and teens, depending on age, and from 75 to 120 mg for nonsmoking adults. People who smoke need 35 mg more than the RDA per day.  
  
Does it work?  
Common cold  
Taking vitamin C regularly might help decrease cold symptoms and reduce the number of days a cold lasts. It might also help reduce the risk of getting a cold in people who undergo extreme physical stress, such as marathon runners and soldiers stationed in very cold locations. However, taking vitamin C after coming down with a cold may not be helpful.  
  
Research suggests that vitamin C supplements might be more effective in people who do not get enough vitamin C from foods and beverages.  
  
Sepsis (using intravenous vitamin C, not vitamin C supplements)  
Sepsis is a life-threatening complication of an infection that can damage the body s organs and tissues. It s not clear whether high-dose intravenous (IV) vitamin C helps treat sepsis, and in some cases it might be harmful. In some studies, IV vitamin C reduced the risk of death, but in other studies it did not affect the risk of death or the amount of organ damage. Other research suggests that IV vitamin C might increase the risk of death or organ damage.  
  
Is it safe?  
Vitamin C is safe at daily intakes up to 400 to 1,800 mg for children and teens, depending on age, and up to 2,000 mg for adults. Taking higher amounts of vitamin C can cause diarrhea, nausea, and stomach cramps, and it might also cause false readings on blood sugar monitors, which are used by people with diabetes. In people with hemochromatosis (an iron overload disorder), high amounts of vitamin C might cause iron build-up in the body, which can damage body tissues.  
  
Vitamin C supplements might decrease the effectiveness of radiation therapy and chemotherapy.  
  
More information about vitamin C is available in the ODS consumer fact sheet on vitamin C.  
  
For information about vitamin C and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Vitamin D  
Vitamin D is an essential nutrient that is naturally present in fatty fish and fish liver oils and in small amounts in beef liver, egg yolks, and cheese. It s also added to some foods, such as fortified milk. Your body can also make vitamin D when your skin is exposed to the sun. Vitamin D is important for healthy bones and immune function.  
  
The RDA ranges from 10 to 15 mcg (400 International Units [IU] to 600 IU) for infants, children, and teens, depending on age, and from 15 to 20 mcg (600 to 800 IU) for adults.  
  
Does it work?  
Flu, pneumonia, and other respiratory infections  
People with low vitamin D levels might be more likely to get respiratory infections and might have a higher chance of dying from these infections. Some studies suggest that taking vitamin D supplements regularly might slightly reduce the risk of getting a respiratory infection, especially in people with low vitamin D levels. However, other studies have not found that taking vitamin D supplements reduces the risk of respiratory infections. In addition, vitamin D supplements do not appear to help treat respiratory infections.  
  
HIV infection  
People with HIV have a higher risk of vitamin D deficiency partly because many HIV medications cause the body to break down vitamin D faster than normal. Having a vitamin D deficiency might also worsen HIV infection. However, studies haven t shown that vitamin D supplements improve the health of people with HIV.  
  
Is it safe?  
Vitamin D is safe at daily intakes up to 25 to 100 mcg (1,000 to 4,000 IU) for infants, children, and teens, depending on age, and up to 100 mcg (4,000 IU) for adults. Taking higher amounts can cause nausea, vomiting, muscle weakness, confusion, pain, loss of appetite, dehydration, excessive urination and thirst, and kidney stones. Extremely high doses can cause kidney failure, damaged blood vessels and heart valves, heart rhythm problems, and death.  
  
Vitamin D supplements might interact with some medications such as orlistat (used for weight loss), statins (used to lower cholesterol levels), thiazide diuretics (used for high blood pressure), and steroids.  
  
More information about vitamin D is available in the ODS consumer fact sheet on vitamin D.  
  
For information about vitamin D and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Vitamin E  
Vitamin E (also called alpha-tocopherol) is an essential nutrient found in nuts, seeds, vegetable oils, and green leafy vegetables. It acts as an antioxidant and helps your immune system function properly. Vitamin E deficiency is rare.  
  
The RDA is 4 to 15 mg for infants, children, and teens, depending on age, and 15 to 19 mg for adults.  
  
Does it work?  
Pneumonia and other respiratory infections  
It s not clear whether vitamin E supplements reduce the risk or severity of respiratory infections. Some studies have found that vitamin E supplements might help but others have not, and the effects might depend on whether someone has low vitamin E levels. One study in people who had normal vitamin E levels found that those who took high-dose vitamin E supplements had worse respiratory symptoms and were sick longer.  
  
Is it safe?  
Vitamin E from food is safe at any level. In supplements, vitamin E is safe at daily intakes up to 200 to 800 mg for children and teens, depending on age, and up to 1,000 mg for adults. Taking higher amounts can increase the risk of bleeding and stroke.  
  
Vitamin E supplements might interact with blood thinners and might reduce the effectiveness of radiation therapy and chemotherapy.  
  
More information about vitamin E is available in the ODS consumer fact sheet on vitamin E.  
  
For information about vitamin E and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Minerals  
Selenium  
Selenium is an essential mineral found in many foods, including Brazil nuts, seafood, meat, poultry, eggs, dairy products, bread, cereals, and other grain products. It acts as an antioxidant and is important for reproduction, thyroid gland function, and DNA production.  
  
The RDA ranges from 15 to 70 micrograms (mcg) for infants, children, and teens, depending on age, and from 55 to 70 mcg for adults.  
  
Does it work?  
HIV infection  
People with HIV have higher risk of selenium deficiency than other people, and this might worsen their infection and increase the risk of death. However, it s not clear whether taking selenium supplements improves the health of people with HIV. Some studies have found that selenium supplements might improve immune function slightly in people with HIV, but other studies have not.  
  
Is it safe?  
Selenium is safe at daily intakes up to 45 to 400 mcg for infants, children, and teens, depending on age, and up to 400 mcg for adults. Taking higher amounts can cause a garlic odor in the breath, a metallic taste in the mouth, hair and nail loss or brittleness, skin rash, nausea, diarrhea, fatigue, irritability, and nervous system problems.  
  
Selenium might interact with cisplatin (a drug used in chemotherapy).  
  
More information about selenium is available in the ODS consumer fact sheet on selenium.  
  
For information about selenium and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Zinc  
Zinc is an essential nutrient found in seafood, meat, beans, nuts, whole grains, and dairy products. It s important for a healthy immune system, making proteins and DNA, healing wounds, and for proper sense of taste.  
  
The RDA ranges from 2 to 13 mg for infants, children, and teens, depending on age, and from 8 to 12 mg for adults.  
  
Does it work?  
Common cold  
Some studies suggest that zinc lozenges and zinc syrup speed recovery from the common cold if you start taking them at the start of a cold. However, these products don t seem to affect the severity of cold symptoms. More research is needed to determine the best dose and form of zinc for the common cold as well as how often and how long it should be taken.  
  
Pneumonia in children  
Some studies in lower income countries show that zinc supplements lower the risk of pneumonia in young children. However, zinc doesn t seem to speed recovery or reduce the number of deaths from pneumonia.  
  
Diarrhea in children  
Studies show that zinc supplements help shorten the duration of diarrhea in children in low-income countries, where zinc deficiency is common. The World Health Organization and UNICEF recommend that children with diarrhea take zinc for 10 to 14 days (20 mg/day, or 10 mg/day for infants under 6 months). However, it s not clear if zinc supplements help children with diarrhea who already get enough zinc, such as most children in the United States.  
  
HIV infection  
Many people with HIV have low zinc levels. This occurs because they have trouble absorbing zinc from food and they often have diarrhea, which increases zinc loss. Some studies have found that supplemental zinc decreases diarrhea and complications of HIV, but other studies have not. Zinc supplements do not appear to reduce the risk of death in people with HIV.  
  
Is it safe?  
Zinc is safe at daily intakes up to 4 to 34 mg for infants, children, and teens, depending on age, and up to 40 mg for adults. Taking higher amounts can cause nausea, vomiting, loss of appetite, stomach cramps, diarrhea, and headaches. High intakes of zinc over a long time can cause low blood levels of copper and impair immune function.  
  
Zinc supplements might interact with antibiotics, penicillamine (used to treat rheumatoid arthritis), and thiazide diuretics (used to treat high blood pressure).  
  
More information about zinc is available in the ODS consumer fact sheet on zinc.  
  
For information about zinc and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Botanicals  
Andrographis  
Andrographis is an herb native to Southeast Asia. It might help your body fight viruses, reduce inflammation, and strengthen your immune system.  
  
Does it work?  
Common cold and other respiratory infections  
Some studies have found that taking andrographis after getting a cold or other respiratory infection might lessen the severity of symptoms and shorten the length of time symptoms last. However, additional studies are needed to confirm these findings.  
  
Is it safe?  
No safety concerns have been reported when andrographis is used as directed. Side effects of andrographis can include nausea, vomiting, dizziness, skin rashes, diarrhea, and fatigue.  
  
Andrographis might decrease blood pressure and thin the blood, so it could interact with blood pressure and blood thinning medications.  
  
Andrographis might also decrease the effectiveness of medications that suppress the immune system. Andrographis might affect fertility, so some scientists recommend avoiding it if you are pregnant or planning to have a baby.  
  
For information about andrographis and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Echinacea  
Echinacea is an herb that grows in North America and Europe. It might help stop the growth or spread of some types of viruses and other germs. It might also help strengthen your immune system and reduce inflammation.  
  
Does it work?  
Common cold and flu  
Studies have found that echinacea might slightly reduce the risk of catching a cold, but it doesn t reduce the severity of symptoms or shorten the length of time symptoms last.  
  
It s unclear whether echinacea is helpful for the flu.  
  
Is it safe?  
Echinacea appears to be safe. Side effects can include stomach upset, diarrhea, trouble sleeping, and skin rashes. In rare cases, echinacea might cause allergic reactions.  
  
Echinacea might reduce the effectiveness of some medications, including medications that suppress the immune system. Scientists don t know if echinacea is safe to take during pregnancy.  
  
For information about echinacea and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Elderberry (European Elder)  
Elderberry (or elder berry) is the fruit of a tree that grows in North America, Europe, and parts of Africa and Asia. Elderberry might help your body fight viruses and other germs, reduce inflammation, and strengthen your immune system.  
  
Does it work?  
Common cold and flu  
Elderberry doesn t appear to reduce the risk of coming down with the common cold. However, some studies have found that elderberry might help relieve symptoms of colds and flu and help people recover quicker.  
  
Is it safe?  
Elderberry flowers and ripe fruit appear to be safe to eat. However, the bark, leaves, seeds, and raw or unripe elderberry fruit can be poisonous and can cause nausea, vomiting, diarrhea, and dehydration. Cooked elderberry fruit and properly manufactured supplements do not have this safety concern.  
  
Elderberry might affect insulin and blood sugar levels. It might also reduce the effectiveness of medications that suppress the immune system. Scientists don t know if elderberry is safe to take during pregnancy.  
  
For information about elderberry and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Garlic  
Garlic is a vegetable that has been used in cooking throughout history. It is also available as a dietary supplement.  
  
Garlic might help your body fight viruses and other germs.  
  
Does it work?  
Common cold and flu  
Only a few studies have looked at whether garlic supplements help prevent the common cold or flu, and it s not clear if garlic is helpful.  
  
Is it safe?  
Garlic is considered safe. Side effects can include bad breath, body odor, and skin rash.  
  
Garlic might interact with blood thinners and blood pressure medications.  
  
Ginseng  
Ginseng (Panax ginseng or Panax quinquefolius) is a plant used in traditional Chinese medicine. It might help your body fight viruses, reduce inflammation, and strengthen your immune system.  
  
Another botanical, eleuthero (Eleutherococus senticosus), has sometimes been called Siberian ginseng, but it is not related to true ginseng.  
  
Does it work?  
Common cold, flu, and other respiratory infections  
Ginseng might reduce the risk of coming down with the common cold, flu, or other respiratory infections. However, it s unclear whether ginseng helps relieve symptoms or affects the length of time symptoms last.  
  
Is it safe?  
Ginseng appears to be safe. Side effects can include headache, trouble sleeping, and digestive upset. However, high doses (more than 2.5 grams [g]/day) of ginseng might cause insomnia, rapid heartbeat, high blood pressure, and nervousness.  
  
Ginseng might interact with diabetes medications, stimulants, and medications that suppress the immune system.  
  
For information about ginseng and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Tea and tea catechins  
Tea (Camellia sinensis) is a popular beverage that may have health benefits. Tea extracts are also available as dietary supplements.  
  
Green, black, and oolong tea leaves are processed in different ways. Green tea is made from dried and steamed tea leaves, and black and oolong teas are made from fermented tea leaves.  
  
Tea, especially green tea, has high amounts of substances called catechins. Catechins might help fight viruses and other germs.  
  
Does it work?  
Flu and other respiratory infections  
Based on only a few studies, it s unclear whether tea or tea catechins are helpful for the flu or other respiratory infections. Some studies have found that tea and tea catechins might reduce the risk of coming down with upper respiratory infections. They might also reduce the length and severity of some symptoms but not other symptoms.  
  
Is it safe?  
Tea is safe to drink. Side effects of green tea extract can include nausea, constipation, stomach discomfort, and increased blood pressure. Some green tea extracts might damage your liver, especially if you take them on an empty stomach.  
  
Tea also contains caffeine, which can disturb your sleep and cause nervousness, jitteriness, and shakiness. Safe doses of caffeine for healthy adults are up to 400 to 500 mg/day and up to 200 mg/day for people who are pregnant.  
  
Tea might interact with atorvastatin (a cholesterol-lowering drug) and stimulants, such as bitter orange or ephedrine.  
  
Other Ingredients  
Glutamine  
Glutamine is an amino acid found in many foods including beef, fish, poultry, dried beans, eggs, rice, grains, and dairy products. Your body makes enough glutamine to meet your needs, except under rare conditions (for example, if you are critically ill in an intensive care unit [ICU] or have had major surgery).  
  
Glutamine helps your immune system work properly.  
  
Does it work?  
Critical illness (giving glutamine as an IV or tube feeding)  
It s unclear whether glutamine helps people who are critically ill. Some studies in hospitalized patients who were critically ill or had undergone major surgery found that glutamine given as an IV or tube feeding reduced the risk of getting an infection, but it did not reduce the risk of death.  
  
Is it safe?  
Glutamine is considered safe. Side effects can include nausea, bloating, burping, pain, gas, and vomiting. These side effects are more likely to occur with higher doses of glutamine.  
  
No interactions between glutamine and medications have been reported.  
  
N-acetylcysteine and glutathione  
N-acetylcysteine (NAC) is similar to cysteine, an amino acid. It acts as an antioxidant and helps reduce mucus in the respiratory tract.  
  
NAC raises levels in your body of a substance called glutathione, which also acts as an antioxidant. NAC and glutathione might also help your body fight viruses and other germs, reduce inflammation, and strengthen your immune system.  
  
Does it work?  
HIV infection  
People with HIV may have low levels of glutathione, which might increase the risk of certain diseases including tuberculosis. However, there is very little research on NAC supplements in people with HIV. Therefore, scientists don t know whether it s helpful.  
  
Is it safe?  
NAC appears to be safe. Side effects can include nausea, vomiting, stomach pain, diarrhea, indigestion, and heartburn.  
  
NAC might interact with blood thinners and blood pressure medications. Taking NAC with nitroglycerine (used to treat chest pain) might cause low blood pressure and severe headaches.  
  
For information about NAC and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Omega-3 fatty acids  
Omega-3s are types of fats, including alpha linolenic acid (ALA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA). ALA is found mainly in plant oils, such as flaxseed, soybean, and canola oils. EPA and DHA are found mainly in fatty fish and fish oils.  
  
Omega-3s are important for healthy cell membranes and proper function of the heart, lungs, brain, immune system, and endocrine system.  
  
The recommended amount of omega-3s for infants is 0.5 g per day, and 0.7 to 1.6 g per day of ALA for children, teens, and adults, depending on age. EPA and DHA do not have individual recommendations.  
  
Omega-3s might help your body fight viruses and other germs, reduce inflammation, and strengthen your immune system.  
  
Does it work?  
Acute respiratory distress syndrome (giving omega-3s as an IV or tube feeding)  
Acute respiratory distress syndrome (ARDS) is a serious lung condition that can lead to death. In people who do recover, ARDS often causes long-term physical and mental health problems.  
  
Researchers have studied whether giving omega-3s as an IV or tube feeding is helpful for people with ARDS, but results from these studies are not clear. Some studies have found that omega-3s given in this manner might help the lungs work better, but they don t appear to lower the risk of dying from ARDS. In addition, it s not clear whether omega-3s given in this manner affect the length of time people are hospitalized with ARDS and need a ventilator to help them breathe.  
  
Respiratory infections in infants and young children  
The immune system continues to develop in babies after birth, and their immune cells contain the omega-3s EPA and DHA. However, it s not clear whether adding omega-3s to infant formula improves immune function or reduces the risk of getting respiratory infections.  
  
A study in school-age children found that children who consumed milk with added EPA and DHA had fewer upper respiratory infections than those who did not consume omega-3s. In another study, however, using an infant formula containing DHA and another fatty acid had no effect on the risk of respiratory infections in infants.  
  
Is it safe?  
Omega-3s are considered safe. Side effects can include a bad taste in the mouth, bad breath, heartburn, nausea, digestive discomfort, diarrhea, headache, and smelly sweat. Omega-3s might interact with blood thinners, blood pressure medications, and medications that suppress the immune system.  
  
More information about omega-3s is available in the ODS consumer fact sheet on omega-3 fatty acids.  
  
For information about omega-3s and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Probiotics  
Probiotics are live microorganisms (bacteria and yeasts) that provide health benefits. They are naturally present in certain fermented foods, added to some food products, and available as dietary supplements. Probiotics act mostly in the stomach and intestines. They might improve immune function and help fight viruses.  
  
Does it work?  
Acute diarrhea in infants and children  
Acute infectious diarrhea in infants and children causes loose or liquid stools and three or more bowel movements within 24 hours. This condition is often caused by a viral infection and can last for up to a week. Some infants and children also develop fever and vomiting. Some studies have shown that probiotics shorten acute diarrhea by about 1 day, but other studies do not.  
  
Some studies have reported that two strains of probiotics Lactobacillus rhamnosus GG (LGG) and Saccharomyces boulardii were most likely to benefit children with acute infectious diarrhea, but other studies have not.  
  
Common cold, flu, and other respiratory infections  
Probiotics might reduce the risk of some respiratory infections and shorten the length of illness. Some studies in infants, children, and adults have found that probiotics reduce the risk of getting a cold and help relieve some symptoms, such as fever and cough. Other studies in children reported fewer sick days from school and quicker recovery. However, formulations of probiotics vary, and the effects of one product may not be the same as another.  
  
Ventilator-associated pneumonia  
It s not clear whether probiotics help people who are critically ill. Some studies have found that probiotics lower the risk of developing pneumonia in people who are critically ill and need a ventilator to help them breathe, but other studies have not.  
  
Is it safe?  
Probiotics are considered safe for most people. Side effects can include gas and other digestive symptoms. In people who are very ill or have immune system problems, probiotics might cause severe illness. Probiotics might also cause infections or even life-threatening illness in preterm infants. Although probiotics don t appear to interact with medications, taking antibiotics or antifungal medications might decrease the effectiveness of some probiotics.  
  
More information about probiotics is available in the ODS consumer fact sheet on probiotics.  
  
For information about probiotics and COVID-19, see the ODS consumer fact sheet, Dietary Supplements in the Time of COVID-19.  
  
Do dietary supplements interact with medications or other supplements?  
Yes, some supplements can interact or interfere with medicines you take.  
  
Tell your doctor, pharmacist, and other health care providers about any dietary supplements and prescription or over-the-counter medicines you take. They can tell you if the dietary supplements might interact with your medicines or if the medicines might interfere with how your body absorbs, uses, or breaks down nutrients.  
  
Where can I find out more about dietary supplements and immune function?  
For general information on dietary supplements and immune function  
Office of Dietary Supplements (ODS) Health Professional Fact Sheet on Dietary Supplements for Immune Function and Infectious Diseases  
For more information on food sources of vitamins, minerals, and other nutrients  
U.S. Department of Agriculture s FoodData Centralexternal link disclaimer  
For more information on herbs and botanicals  
Herbs at a Glance, National Center for Complementary and Integrative Health  
For advice on buying dietary supplements  
ODS Frequently Asked Questions: Which brand(s) of dietary supplements should I purchase?  
For information about building a healthy dietary pattern  
MyPlateexternal link disclaimer  
Dietary Guidelines for Americansexternal link disclaimer  
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