

## What are the organs of the immune system?

The defense system of the human body is made up of entire organs and vessel systems like the lymph vessels, but also of individual cells and proteins. The inner and outer surfaces of the body are the first barriers against pathogens (germs). These surfaces include the skin and all mucous membranes, which form a kind of mechanical protective wall.

- The body's own antibacterial substances can disable different pathogens from the environment at an early stage. A certain enzyme found in saliva, the airways and tear fluid destroys the cell walls of bacteria.
- Many pathogens that are breathed in get stuck to mucus in the bronchi and are then moved out of the airways by hair-like structures called cilia. The cough and sneeze reflex can also help to remove pathogens.
- Most pathogens that enter the body together with food are usually stopped by stomach acid. Normal flora, harmless bacteria that reside on the skin and many mucous membranes in the body, also help to protect the body.

**Bone marrow** is a sponge-like tissue situated inside of the bones. Most defense cells are produced and then also multiply here. They then migrate from the bone marrow into the bloodstream.

**Thymus** is only fully developed in children. From adolescence onwards, it is slowly turned into fat tissue. The gland-like organ is situated behind the breast bone above the heart. Certain defense cells are differentiated in the thymus: the so-called T lymphocytes, or T cells for short, among other things, are responsible for coordinating the innate and the adaptive immune system.

**Lymphatic system**, made up of lymph nodes and vessels, are continually exchanging substances between the blood and the tissue in the body. Fluid constantly leaves the blood, and defense cells and proteins migrate into the surrounding tissue. Most of the fluid is later taken back into the blood vessels.

**The Spleen** is situated in the left upper abdomen, beneath the diaphragm. It has a variety of tasks in the defense system.

**Tonsils** also belong to the defense system. Due to their special position at the throat and palate, their defense cells come into contact with pathogens especially soon, and can activate the immune system immediately.

**Lymphatic tissue in the bowel and in other mucous membranes in the body** The bowel plays a central role in defending the body against pathogens. More than half of all cells that produce antibodies are found in the bowel wall, especially in the last part of the small bowel and in the appendix. [www.ncbi.nlm.nih.gov/pubmedhealth/PMH0072579](http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0072579)



*To keep the body in good health is a duty... otherwise we shall not be able to keep our mind strong and clear.*  
Buddha

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2017-2018  
Influenza season

"Every time you eat or drink, you are either feeding disease or fighting it."

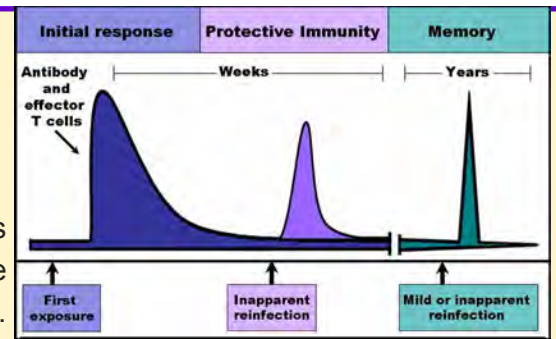
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# Understanding How Vaccines Work

Vaccines help develop immunity by imitating an infection. This type of infection, however, does not cause illness, but it does cause the immune system to produce T-lymphocytes and antibodies. Sometimes, after getting a vaccine, the imitation infection can cause minor symptoms, such as fever. Such minor symptoms are normal and should be expected as the body builds immunity.

Once the imitation infection goes away, the body is left with a supply of “memory” T-lymphocytes as well as B-lymphocytes that will remember how to fight that disease in the future. However it typically takes a few weeks for the body to produce T-lymphocytes and B-lymphocytes after vaccination. Therefore it is possible that a person who was infected with a disease just before or just after vaccination could develop symptoms and get a disease, because the vaccine has not had enough time to provide protection.

Excerpts from [www.cdc.gov/vaccines/hcp/conversations](http://www.cdc.gov/vaccines/hcp/conversations)



# Psoriasis

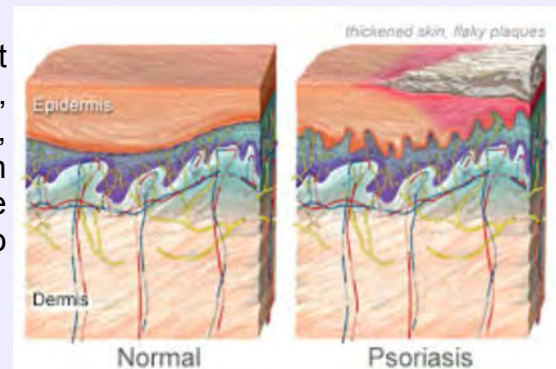


Psoriasis is a common skin condition that changes the life cycle of skin cells, plaque psoriasis. Psoriasis causes cells to build up rapidly on the surface of the skin. The extra skin cells form thick, silvery soft scales and itchy, dry, red patches that are sometimes painful.

There are many other forms of psoriasis that can affect the body as this is related to the **immune system**. The cause of psoriasis isn't fully known, but it's thought to be related to an immune system problem with cells in your body. More specifically, one key cell is a type of white blood cell called a T lymphocyte or T cell. Normally, T cells travel throughout the body to detect and fight off foreign substances, such as viruses or bacteria. The T cells attack healthy skin cells by mistake, as if to heal a wound or to fight an infection. Certain triggers can affect psoriasis such as infections, injury to the skin, stress, weight gain, cold weather and certain medications.

In spite of a range of treatment options, effective treatment of psoriasis can be challenging. The disease is unpredictable, going through cycles of improvement and worsening, seemingly at random. Effects of psoriasis treatments also can be unpredictable; what works well for one person might be ineffective for someone else. The skin can become resistant to various treatments over time.

Talk to your doctor about your options. Excerpts from [mayoclinic.org](http://mayoclinic.org)





# How to boost your immune system

**WARNING**  
EXERCISE  
HAS BEEN KNOWN  
TO CAUSE HEALTH  
& HAPPINESS  
😊

## Nutrition

Like any fighting force, the immune system army marches on its stomach. Healthy immune system warriors need good, regular nourishment. Scientists have long recognized that people who live in poverty and are malnourished are more vulnerable to infectious diseases. Whether the increased rate of disease is caused by malnutrition's effect on the immune system, however, is not certain. There are still relatively few studies of the effects of nutrition on the immune system of humans, and even fewer studies that tie the effects of nutrition directly to the development (versus the treatment) of diseases.

There is some evidence that various micronutrient deficiencies — for example, deficiencies of zinc, selenium, iron, copper, folic acid, and vitamins A, B6, C, and E — alter immune responses in animals, as measured in the test tube. However, the impact of these immune system changes on the health of animals is less clear, and the effect of similar deficiencies on the human immune response has yet to be assessed. But the research at this stage is promising, at least for some of the micronutrients.

So what can you do? If you suspect your diet is not providing you with all your micronutrient needs — maybe you don't like vegetables or you choose white bread over whole grains — taking a daily multivitamin and mineral supplement brings health benefits of many types, beyond any possibly beneficial effects on the immune system. Taking mega doses of a single vitamin does not. More is not necessarily better. Researchers are investigating the immune boosting potential of a number of different nutrients.

## Herbs and other supplements

Walk into a store, and you will find bottles of pills and herbal preparations that claim to "support immunity" or otherwise boost the health of your immune system. Although some preparations have been found to alter some components of immune function, thus far there is no evidence that they actually bolster immunity to the point where you are better protected against infection and disease. Demonstrating whether an herb — or any substance, for that matter — can enhance immunity is, as yet, a highly complicated matter. Scientists don't know, for example, whether an herb that seems to raise the levels of antibodies in the blood is actually doing anything beneficial for overall immunity.

## Adopt healthy-living strategies

Your first line of defense is to choose a healthy lifestyle. Following general good-health guidelines is the single best step you can take toward naturally keeping your immune system strong and healthy. Every part of your body, including your immune system, functions better when protected from environmental assaults and bolstered by healthy-living strategies such as these:

- Don't smoke.
- Eat a diet high in fruits, vegetables, and whole grains, and low in saturated fat.
- Exercise regularly.
- Maintain a healthy weight.
- Control your blood pressure.
- If you drink alcohol, drink only in moderation.
- Get adequate sleep.
- Take steps to avoid infection, such as washing your hands frequently and cooking meats thoroughly.



Get regular medical screening tests for people in your age group and risk category. Follow through with your doctors recommendations. For the full article go to : <http://www.health.harvard.edu/staying-healthy/how-to-boost-your-immune-system>



# Healthy Eats

## INGREDIENTS

### Marinade:

- 1/3 cup extra-virgin olive oil
- 6 tablespoons fresh lemon juice
- 5 garlic cloves, minced
- 1 teaspoon kosher salt
- 1 tablespoon sweet paprika
- 2 teaspoons ground cumin
- 1 teaspoon ground coriander
- 1 teaspoon ground cinnamon
- 1/2 teaspoon crushed red pepper
- 1/2 teaspoon ground turmeric
- 1/2 teaspoon black pepper

- 2 pounds skin-on, bone-in chicken thighs
- 2 medium red onions, cut into 8 wedges

### Salad:

- 1/2 pound head of romaine lettuce, thinly shredded (4 cups)
- 1/2 cup cilantro leaves
- 3 scallions, thinly sliced
- 2 tablespoons finely chopped jalapeño (from 1/2 chili pepper) may omit.

### Salad dressing:

- 2 tablespoons plus 1 teaspoon fresh lemon juice
- Kosher salt
- Pepper
- 2 tablespoons extra-virgin olive oil

### Sauce:

- 1 cup crème fraîche (sour cream)
- 1 tablespoon finely grated lemon zest

### Naan or pita bread and green olives for serving.

**Tips:** this is a delicious weekend meal for family and friends. It can be made in stages. Marinade and dressings in the morning and then roast the chicken when you are ready to enjoy.

I prefer the soft naan bread available in most grocery stores where you would find the pita bread. It's good to heat it up a little while the oven is hot.

**Enjoy!**



Take 5 And Stretch

## Chicken Shawarma with Shredded Lettuce Salad

Cookbook authors Katie and Giancarlo Caldesti, Food and Wine magazine, May 2017

### DIRECTIONS: This is not as complicated as it looks

**Make the chicken:** In a large bowl, whisk the olive oil with the lemon juice, garlic, salt and spices. Add the chicken and onions and turn to coat in the marinade. Cover and refrigerate for 1 hour or overnight.

Preheat the oven to 450°. Line a large rimmed baking sheet with foil and arrange the chicken on it skin side up. Add the onions. Scrape any remaining marinade in the bowl over the chicken. Roast for about 40 minutes, until the chicken and onions are browned and the chicken is cooked through. Transfer the chicken to a cutting board and coarsely shred with a knife and fork.

**Meanwhile:** In a small bowl, whisk the crème fraîche (sour cream) with the lemon zest and 1 teaspoon of the lemon juice; season with salt (serve on the side with the chicken).

### For the Salad

In a medium bowl, whisk the remaining 2 tablespoons of lemon juice with the olive oil; season with salt and pepper. Add the lettuce, cilantro, scallions and jalapeño and toss to coat.

On a large platter, arrange the salad with the chicken, onions, pita bread and olives. Serve with the lemon crème fraîche alongside.

### MAKE AHEAD

The lemon crème fraîche can be refrigerated for up to 1 day.

*So Good!*

### What's in season? Fresh from Florida:

*Avocado, Carambola, Guava, Lychee, Mango, Mushroom, Passion fruit and Peanuts.*

August is not a big growing season for Florida but our neighboring states are busy growing all kinds of fruits and vegetables like salads, zucchini, beans, tomatoes, watermelon, peaches, plums, nectarines and so much more.



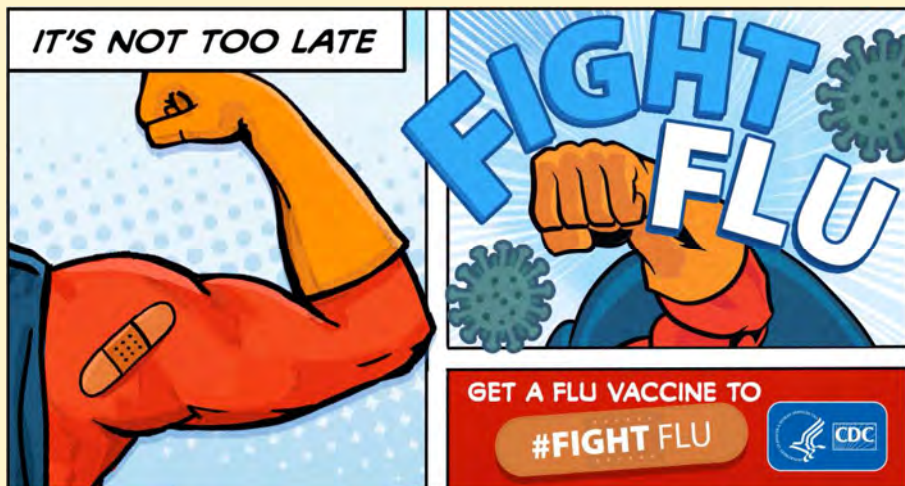
# Frequently Asked Flu Questions

## 2017-2018 Influenza Season

**Information for 2017-2018** Getting an annual flu vaccine is the first and best way to protect yourself and your family from the flu. Flu vaccination can reduce flu illnesses, doctors' visits, and missed work and school due to flu, as well as prevent flu-related hospitalizations. The more people who get vaccinated, the more people will be protected from flu, including older people, very young children, pregnant women and people with certain health conditions who are more vulnerable to serious flu complications.

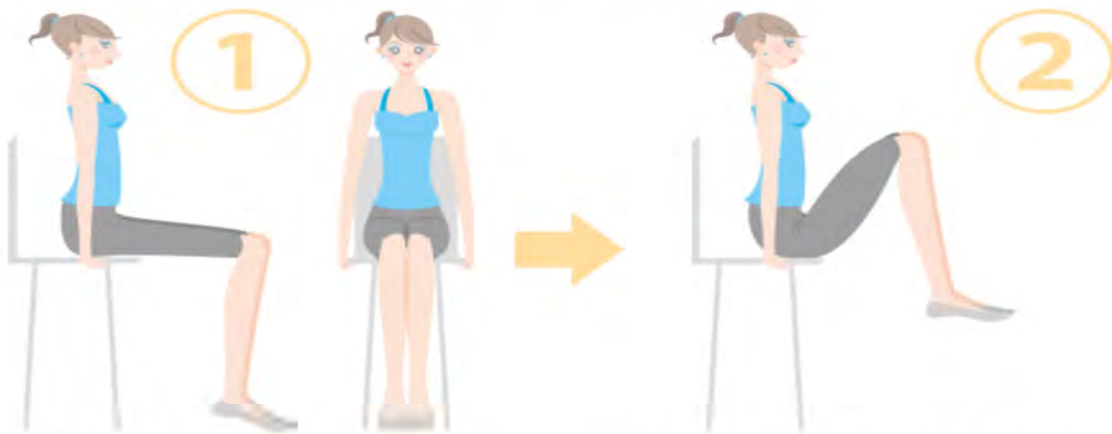
**What viruses will the 2017-2018 flu vaccines protect against?** There are many flu viruses and they are constantly changing. The composition of U.S. flu vaccines is reviewed annually and updated to match circulating flu viruses. Flu vaccines protect against the three or four viruses that research suggests will be most common. For 2017-2018, three-component vaccines are recommended to contain: an A/Michigan/45/2015 (H1N1) pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus and a B/Brisbane/60/2008-like (B/Victoria lineage) virus. Four component vaccines, which protect against a second lineage of B viruses, are recommended to be produced using the same viruses recommended for the trivalent vaccines, as well as a B/Phuket/3073/2013-like (B/Yamagata lineage) virus.

**Misconceptions about Flu Vaccines, can a flu shot give you the flu?** No, a flu shot cannot cause flu illness. Flu vaccines given with a needle are currently made in two ways: the vaccine is made either with a) flu vaccine viruses that have been 'inactivated' and are therefore not infectious, or b) with no flu vaccine viruses at all (which is the case for recombinant influenza vaccine). The most common side effects from the influenza shot are soreness, redness, tenderness or swelling where the shot was given. Low-grade fever, headache and muscle aches also may occur. **FUN FACT:** In randomized, blinded studies, where some people get inactivated flu shots and others get salt-water shots, the only differences in symptoms was increased soreness in the arm and redness at the injection site among people who got the flu shot. There were no differences in terms of body aches, fever, cough, runny nose or sore throat. **Flu vaccine will be offered, starting in September.**



**Fight the Flu it starts with you!**

### Work Your Abs in Your Chair



- Place hands at your side on edge of chair while keeping your elbows in
- Grip chair holding firmly holding

- While holding on to the chair bring your knees up towards your chest
- Hold in elevated position up to 5 seconds
- Slowly lower your legs (10-20 seconds)

Please consult your healthcare provider before starting any diet or exercise program.

### Contact Us:

**Kristin Halldorsdottir**  
954-467-4700 x 3009

**Nicky Lewin**  
954-467-4700 X 4004

