

Name: _____

Immune Troops! Move In!

by Shauna Hutton

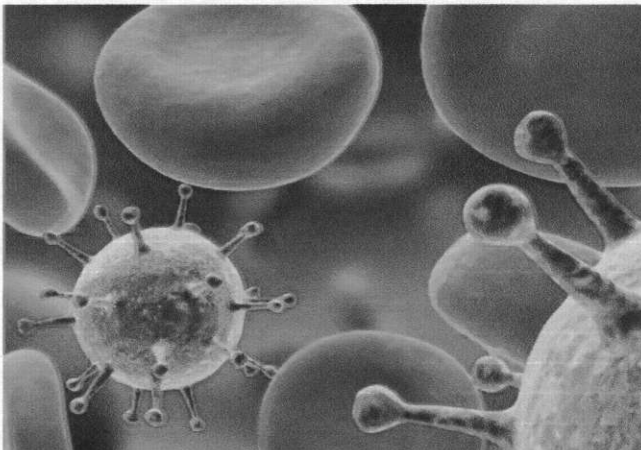
Your body has a very special system that protects you from illness and disease. It's called the immune system and it knows when there is something inside your body that should not be there.

All the cells in your body have a way to tell the immune system, "I belong here. I'm not going to do any harm." And so the immune system leaves those cells alone. Think about the cells in your body wearing name tags that say "self". Anything with a "self" name tag is a good guy. But things like bacteria, viruses, and parasites wear name tags that say "nonself". When the immune system sees a "nonself" name tag, it jumps into action and attacks those foreign invaders. Any foreign substance in your body that makes the immune system attack it, is called an antigen. These antigen invaders can be pollen from the air, a virus, or certain types of bacteria.

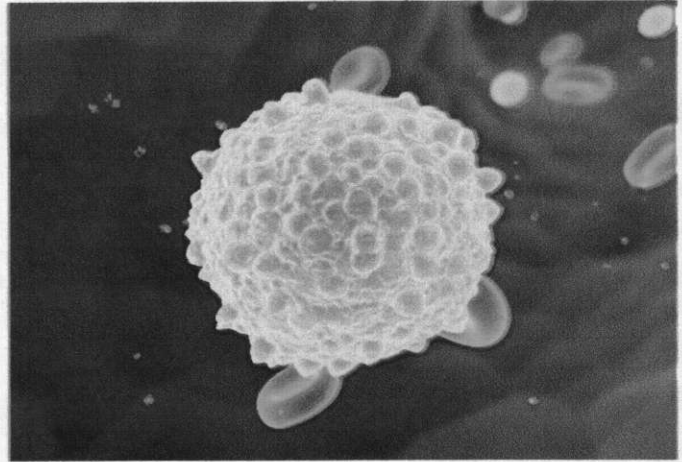
There are many different kinds of immune cells helping to keep you from getting sick. They can be grouped into phagocytes (pronounced fag-uh-sahyt) and lymphocytes (pronounced lim-fuh-sahyt).

Phagocytes are a type of white blood cell, and one of their jobs is to gobble up and digest antigens. They are always swimming around in your blood stream, always on the lookout for antigens. And when they see one, *GULP!*

Lymphocytes are also white blood cells and the main types are B cells, T helper cells, and T killer cells. Many antigens can be very sneaky (like viruses) and can hide from phagocytes, so it's the job of the lymphocytes to find them and get rid of them.



Viruses will kill healthy cells in the body.



White blood cells, like the one pictured above, attack the harmful bacteria, viruses, and parasites that enter your body.

B cells secrete (produce) substances, called antibodies, which stick to the antigen. When that happens, it alerts the T helper cells to come over and either:

1. help the B cells destroy the antigen, or
2. call the phagocytes or T killer cells to move in for the kill

T killer cells are really good at finding and killing cells that have been infected by a virus.

Once a B cell or T cell attacks an antigen, they create cells to "remember" it. Those "memory cells" hang out in your blood and if they see that same antigen again, they quickly recognize it so your immune system can act faster at killing it.

The "B" in B cells stands for **b**one marrow, which is where B cells, and all immune cells originate from. The "T" in T cells stands for **t**hymus. Young T cells start out in bone marrow, but they travel to the thymus to continue growing into mature T cells. The thymus is an immune organ located in the middle of your chest, near your heart. Its job is to produce mature T cells.

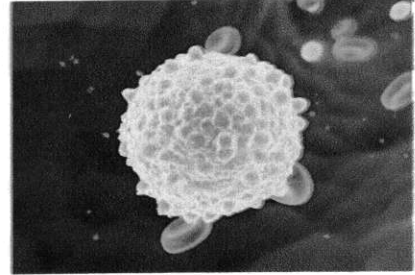
You have your own little army of cells inside you, always fighting to keep you healthy. And you can be a part of that army too! By getting plenty of sleep at night and eating nutritious foods, you'll help keep your immune system strong and ready to fight.

Go immune troops! Go!

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1. What does your immune system do?
- a. makes you sick
 - b. keep your brain sharp
 - c. protect your from illness
 - d. make energy for your body

2. Define the word *antigen*. Give 3 examples of antigens.

3. According to this article, your immune system works much like...
- a. the ocean
 - b. an army
 - c. an engine in a car
 - d. a computer

4. Where are white blood cells made?
- a. in your bones
 - b. in your thymus
 - c. in your brain
 - d. in your heart

5. B and T cells are both...
- a. phagocytes
 - b. bacteria
 - c. antigens
 - d. lymphocytes

5. What can you do to keep your immune system strong?

Now try this: Draw a comic strip that shows white blood cells attacking a virus in the bloodstream.