

CHAPTER 34

Okay... before we get started, I told yOu not to panic about all of the bacteria that you touch every day! This week, you are going to learn **why** your body is so good at keeping bacteria from hurting you!

Right now, as you read this sentence, you are breathing in bacteria from the air.

That's right! These bacteria would love to get inside your body and take over!

However...

Your body is protected very well by something called your...

Immune system

Think of your immune system as a well-trained army that protects you from things that can hurt you! This army never stops attacking things that get into or onto your body.



*ALL SOLDIERS
ARE PRESENT AND
READY FOR DUTY,
SIR!*



Without your immune system, you would not be able to survive in this world!

So who is in this "army"?

Your immune system has a lot of different parts that work together to protect you. You have already learned about one of them...

Your skin!

If you remember from chapter 25, you learned that your skin protects you from diseases by keeping bacteria outside of your body...

...unless you have a cut in your skin!



DOES ANYONE
HAVE SOME
CHAPSTICK? MY
LIPS ARE SO
DRY.

Every time you cut yourself, all kinds of things (even bacteria) get into your body through the opening!

Your immune system attacks everything that doesn't belong inside you while your skin works to close up the cut!

But you still want to help keep bacteria from getting into your body! That's why you always wash your cuts with soap and water before you put on a bandage!

There is another part of your immune system that helps to keep you healthy. The gooey mucus that is in your nose and your throat trap bacteria and keep them from getting into your body. It acts like glue to bacteria! Inside this mucus you will find an enzyme called **lysozyme** ("lie-so-zime") that destroys bacteria very well!

**But what if the bacteria get through my skin?
What makes up the "army" inside my body?**

When something dangerous gets **into** your body, your immune system uses millions of powerful cells called...

**White
blood cells**



There are many different kinds of white blood cells, but nearly all of them have the same job...

Find anything in your body that doesn't belong and get rid of it!

You can feel what happens when your white blood cells get to work...

If you are bitten by a **mosquito** ("mo-skee-toe"), you get a red bump that itches a lot! That red bump is filled with your white blood cells attacking the chemicals and bacteria that may have entered your body. While your white blood

cells work to get rid of the chemicals and bacteria, your skin works to close up the hole that the mosquito made!



**Immune system
Battleground**

Your skin and your white blood cells work together every day!

Even a splinter in your skin will cause your immune system to attack!

Sometimes, your immune system misses some bacteria or other harmful items and the cut gets **infected**. When a cut gets infected it normally gets very warm, turns red and fills with a gooey liquid. The gooey liquid is filled with white blood cells attacking the objects that do not belong in your body (like the splinter!) If your immune system cannot get all of the harmful items out of your body, you have a problem!

Most of the time, you know when this is happening because you may feel very sick. This is when a doctor can give you something called **antibiotics** ("an-ti-bi-ot-icks"). Antibiotics are chemicals that are made to attack bacteria and get rid of them without hurting you in the process!

For example, some antibiotics attack and destroy cell walls in your body. Since you are not a plant or bacteria, every cell in your body is safe! However, if you are a bacteria, this is bad news. The antibiotic will quickly break you apart!

So how do my white blood cells know what they need to get rid of?

That is a very good question. Your white blood cells do not attack every bite of food you eat! And your food does get inside of your body very easily. So here is how your white blood cells figure it out...

Every cell in your body has special chemicals attached to them. Think of these chemicals as "your name" printed on each cell. When white blood cells touch each cell, they can read the name printed on the cell. If your name is not on that cell, the white blood cells begin to attack it!

In some people, an immune system may attack something that does not belong in their body with more of its "army" than is needed! This is called an **allergy**. If any of you have an allergy, you know what I am talking about! When your immune system works too hard to get rid of something, you may have itchy eyes, a sore throat, a runny nose or a huge list of other things. They can be very annoying and harmful for some people.



As you learned in the last chapter, staying clean is a great way to keep your body (and your immune system) healthy. You will learn about another good way to keep your body healthy in the next chapter...

Circle the hidden words from below:

A S T E L G P L I I E X M M M
 F N V W D R Y S N K D C M L E
 G H T J Q S P U F E K B Z C T
 T Q P I O D A V E J N F B I S
 A T X Z B M W W C Y J U K S Y
 J C Y T Q I E W T T F A M S S
 B M E B L O O D E C F T I M K
 E G A L U L A T D F B U L Z I
 E P W L L R O T I R M U I H V
 Y G R E L L A K P C W Q F Y E
 O P O M Q V V W Z L S I Q T G
 I Y J Q R Q L A S D A E I W Z
 Y M W M I S G M E A G H W C K
 U M T E Q N X X B W W J I M S
 S W O S K B K A G M E T D U T

ALLERGY
CELL
LYSOZYME

ANTIBIOTICS
IMMUNE
SYSTEM

BLOOD
INFECTED
WHITE

Match the words in the first column to the best available answer in the second column.

- | | |
|------------------------|---|
| _____ Immune system | 1) an enzyme found in your body that destroys bacteria |
| _____ Infection | 2) the actions of your skin and white blood cells that protect your body from infections |
| _____ Lysozyme | 3) blood cells that act to destroy anything that gets into your body that may be harmful |
| _____ White blood cell | 4) chemicals that are made to attack bacteria and get rid of them without hurting you in the process |
| _____ Allergy | 5) a result of your immune system working too hard to get rid of things in your body; itchy and watery eyes and sore throats and a runny nose are some signs of an allergy |
| _____ Antibiotics | 6) the result of your immune system that misses some bacteria or other item that gets into your body; this makes a cut warm and red in color; it may also be filled with a gooey liquid |

Compare and Contrast

the

Red blood cells and the White blood cells

Compare (things that are the same between the two cells)	Contrast (things that are different between the two cells)