

CHAPTER 27

In the past two chapters, you have explored the importance of your bones, skin and muscles. It is your muscles that seem to keep working with all of your organs, doesn't it? Muscles keep your heart and lungs working every day!

THIS WEEK YOU WILL BE
LEARNING ABOUT YOUR....

**Stomach, Kidneys
and Intestines**

This week, you will learn that your muscles keep three more organs working for you...

Let's start by looking at your **stomach** ("stum-uk")! After you chew up a piece of pizza, the muscles in the back of your throat moves this food down a long tube (known as your **esophagus** ("ee-sof-ah-gus")) to your stomach.

THESE ARE THE
LARGEST COOKIES
I'VE EVER SEEN. AND
THEIR **MINE** ALL
MINE!!!



How does it do this? The muscles of your esophagus push your food down until it reaches the stomach. If you have ever rolled up a tube of toothpaste from the bottom up, you have a good idea of how your food gets moved down your esophagus! The muscles of your esophagus are not skeletal muscles or cardiac muscles, they are known as **smooth muscle**. You are going to hear a lot about Smooth muscle today!

Now back to that slice of pizza you just ate...

Most people think that the stomach is where all of your food is broken down...**but this is not true!**

The most important job of the stomach is to hold onto your food until your body needs it! That's it! Your stomach is made up of smooth muscle, just like your esophagus!

Your stomach does a great job at storing your food, and it is filled with a special liquid...



The inside of your stomach is filled with a liquid called **acid**. The acid in your stomach is a chemical that kills any bacteria that may be on the food you just ate! However, this acid is very dangerous and could burn a hole right through your stomach!

Why doesn't it do that?

Well, the inside walls of your stomach are covered in a thick layer of mucus (much like the goo that you find in the back of your throat and nose!) This mucus protects the walls of your stomach from the acid. Sometimes, people lose some of this mucus and the acid burns a hole through their stomach...**ouch!** This is called an **ulcer** ("uh-l-sir") and they are very painful!

About four hours after you eat, the food that is stored in your stomach starts to look like a creamy slime. Some of this slime is then moved into your **small intestine** ("in-tess-tin")!

Your small intestine looks like a big sausage. Of course, this sausage would be around 20 feet long! Inside your small intestine, your food is broken down into small pieces that your blood can carry throughout the body.

If you look on the inside of your small intestine, you would find millions of little, finger-like bumps all over the place! These little bumps are called **villi** ("vee-lie"). For the next three hours, your villi will move the small, broken down pieces of food from your small intestine into your blood.

What happens to all of the water I drink?

Another good question! After the villi move the broken down food into your blood, the slimy goo that is left over moves into the **large intestine!**

Your large intestine is also shaped like a sausage...but it is much larger and much shorter than your small intestine. It is also pretty dry inside your large intestine.



The inside of your large intestine is dry because the most important job of this organ is to take all of the water out of your food.

What does it do with all of this water?

Think again...how is the large intestine going to move all of this water to every cell in your body? **You got it!**

It will be using the blood!



Getting the water out of your food can take a long time. Some of this leftover goo may stay in your large intestine for up to two days!

Once it is done, however, you are normally left with a stinky mess that is usually flushed down the toilet!

After your body uses all of the food and water inside your blood, there is a lot of "leftovers" hanging around in your blood. These "leftovers" are called **waste products**. Your body does not need waste products, so they must be taken out of your body.

That is where you use another organ, called your **kidneys**!

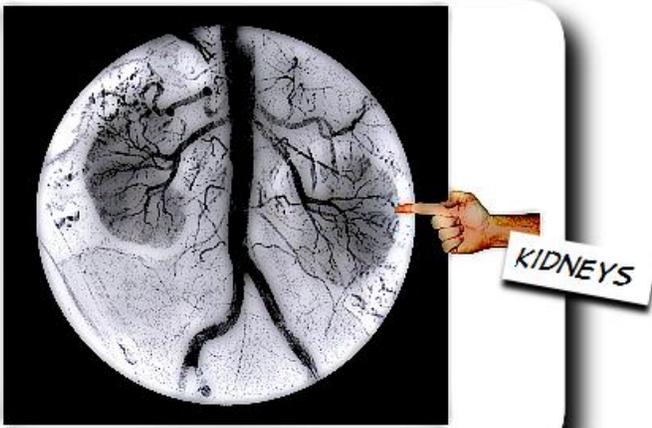
Your **kidneys** (you have two of them!) are small organs that are shaped like beans. Their job is very important too! It is their job to clean out the waste products from your blood.

How does it do this?

Imagine a strainer that your parents use in the kitchen. a strainer lets water pass through the little holes, but it

traps the spaghetti and keeps it from going down the drain! The spaghetti is too big and cannot pass through the little holes in the strainer.

Your kidneys act just like the strainer! When blood passes through the kidneys, they let the good things through (like your nutrients and water) and trap all of the bad chemicals that are floating around in your blood.



LOTS OF THINGS IN NATURE HAVE THE SAME SHAPE. FOR EXAMPLE, THE PICTURE ON TOP SHOWS A TREE WITH SEVERAL BRANCHES. THE BOTTOM PICTURE SHOWS HOW YOUR ARTERIES AND VEINS RUN THROUGH YOUR KIDNEYS. COOL, HUH?

Your kidneys get rid of all these bad chemicals, and even some of the extra water you do not need, by sending them out of your body.

That's right...every time you pee, you are getting rid of all the bad chemicals that have been floating in your blood. It's a good thing they do this, too. Because without your kidneys, you would be pretty sick!

The table below contains words and phrases that have been chopped in half. Find the pieces that fit together and write them in the answer area below.

mach	human	id	anatomy
hagus	esop	lli	ul
vi	ntestine	kid	small i
neys	ntestine	ac	sto
cer	large i		

Answers:

- 1) _____ 6) _____
- 2) _____ 7) _____
- 3) _____ 8) _____
- 4) _____ 9) _____
- 5) _____

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

- | | |
|-----------------------|----------------------------------------------------------------------------------------------------------------------|
| _____ Stomach | 1) a dangerous chemical inside your stomach that kills any bacteria that may be on the food you eat |
| _____ Esophagus | 2) the study of the human body |
| _____ Acid | 3) small bumps inside your small intestine that pulls out all of the nutrients from the food you eat |
| _____ Ulcer | 4) two small organs in your body that clean out your blood |
| _____ Small intestine | 5) a 20-foot long organ that is filled with villi and is the place where you digest your food |
| _____ Villi | 6) a painful hole in a person's stomach |
| _____ Large intestine | 7) a long tube that moves food from your throat into your stomach |
| _____ Kidneys | 8) a long organ in your body that is attached to the small intestine which absorbs all of the water out of your food |
| _____ Human anatomy | 9) an acid-filled sack that stores your food before digestion |

**Last week you were a red blood cell. Today,
imagine you are a jelly donut!
Describe your journey through the body
from the mouth to the intestines.**