Let's Get Movin'!!!

Did you know you have more than 600 muscles in your body? They help you do almost everything — from pumping blood throughout your body to lifting your heavy backpack. You control some of your muscles and others, like your heart, do their jobs without you thinking about them at all.

Muscles are all made of the same material, a type of elastic tissue (sort of like the material in a rubber band). Thousands, or even tens of thousands, of small fibers make up each muscle. You have three different types of muscles in your body: smooth muscle, **cardiac** (say: **kar**-dee-ak) **muscle**, and **skeletal** (say: **skel**-uh-tul) **muscle**.

Smooth Muscles

Smooth muscles are sometimes also called involuntary muscles and they are usually in sheets, or layers, with one layer of muscle behind the other. You can't control this type of muscle. Your brain and body tell these muscles what to do without you even thinking about it. You can't use your smooth muscles to make a muscle in your arm or jump into the air.

But smooth muscles are at work all over your body. In your stomach and digestive system, they contract (tighten up) and relax to allow food to make its journey through the body. Your smooth muscles come in handy if you're sick and you need to throw up. The muscles push the food back out of the stomach so it comes up through the **esophagus** (say: ih-**sah**-fuh-gus) and out of the mouth.

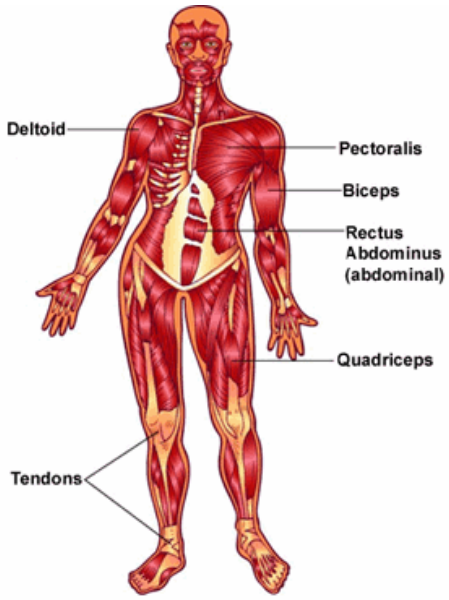
Smooth muscles are also found in your bladder. When they're relaxed, they allow you to hold in urine (pee) until you can get to the bathroom. Then they contract so that you can push the urine out. These muscles are also in a woman's uterus, which is where a baby develops. There they help to push the baby out of the mother's body when it's time to be born.

You'll find smooth muscles at work behind the scenes in your eyes, too. These muscles keep the eyes focused.

A Hearty Muscle

The muscle that makes up the heart is called cardiac muscle. It is also known as the **myocardium** (say: my-uh-**kar**-dee-um). The thick muscles of the heart contract to pump blood out and then relax to let blood back in after it's circulated through the body.

Just like smooth muscle, cardiac muscle works all by itself with no help from you. A special group of cells within the heart are known as the pacemaker of the heart because it controls the heartbeat.



Skeletal Muscle

Now, let's talk about the kind of muscle you think of when we say "muscle" — the ones that show how strong you are and let you boot a soccer ball into the goal. These are your skeletal muscles — sometimes called **striated** (say: **stry**-ay-tud) **muscle** because the light and dark parts of the muscle fibers make them look striped (striated is a fancy word meaning striped).

Skeletal muscles are voluntary muscles, which means you can control what they do. Your leg won't bend to kick the soccer ball unless you want it to. These muscles help to make up the **musculoskeletal** (say: mus-kyuh-low-**skel**-uh-tul) **system** — the combination of your muscles and your skeleton, or bones.

Together, the skeletal muscles work with your bones to give your body power and strength. In most cases, a skeletal muscle is attached to one end of a bone. It stretches all the way across a joint (the place where two bones meet) and then attaches again to another bone.

Skeletal muscles are held to the bones with the help of **tendons** (say: **ten**-dunz). Tendons are cords made of tough tissue, and they work as special connector pieces between bone and muscle. The tendons are attached so well that when you contract one of your muscles, the tendon and bone move along with it.

Skeletal muscles come in many different sizes and shapes to allow them to do many types of jobs. Some of your biggest and most powerful muscles are in your back, near your spine. These muscles help keep you upright and standing tall.

They also give your body the power it needs to lift and push things. Muscles in your neck and the top part of your back aren't as large, but they are capable of some pretty amazing things: Try rotating your head around, back and forth, and up and down to feel the power of the muscles in your neck. These muscles also hold your head high.

Face Muscles

You may not think of it as a muscular body part, but your face has plenty of muscles. You can check them out next time you look in the mirror. Facial muscles don't all attach directly to bone like they do in the rest of the body. Instead, many of them attach under the skin. This allows you to contract your facial muscles just a tiny bit and make dozens of different kinds of faces. Even the smallest movement can turn a smile into a frown. You can raise your eyebrow to look surprised or wiggle your nose.

And while you're looking at your face, don't pass over your tongue — a muscle that's attached only at one end! Your tongue is actually made of a group of muscles that work together to allow you to talk and help you chew food. Stick out your tongue and wiggle it around to see those muscles at work.

Major Muscles

Because there are so many skeletal muscles in your body, we can't list them all here. But here are a few of the major ones:

- In each of your shoulders is a **deltoid** (say: **del**-toyd) **muscle**. Your deltoid muscles help you move your shoulders every which way — from swinging a softball bat to shrugging your shoulders when you're not sure of an answer.

- The **pectoralis** (say: pek-tuh-**rah**-lus) **muscles** are found on each side of your upper chest. These are usually called **pectorals** (say: **pek**-tuh-rulz), or pecs, for short. Many athletes and bodybuilders have large pecs.

- Below these pectorals, down under your rib cage, are your **rectus abdominus** (say: **rek**-tus ab-**dahm**-uh-nus) **muscles**, or **abdominals** (say: ab-**dahm**-uh-nulz). They are also sometimes called abs for short.

- When you make a muscle in your arm, you tense your **biceps** (say: **bye**-seps) muscle. When you contract your biceps muscle, you can actually see it push up under your skin.

- Your **quadriceps** (say: **kwad**-ruh-seps), or quads, are the muscles on the front of your thighs.

- Your **triceps** are the muscles on the back side of your upper arm.

- Your **gastrocnemius** is your calf muscle.

- And when it's time for you to take a seat? You'll be sitting on your gluteus maximus (say: **gloot**-ee-us **mak**-suh-mus), the muscle that's under the skin and fat in your behind!

- Your **hamstrings** are the muscles on the back of the thigh.

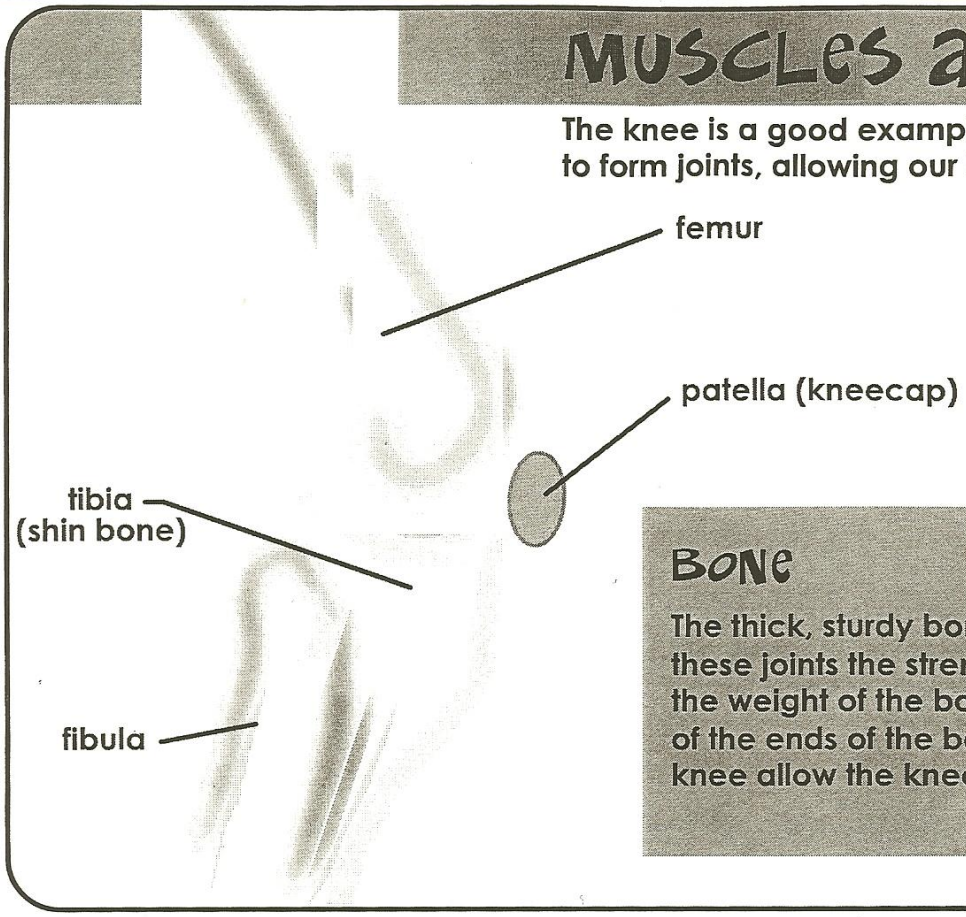
- Your **trapezius** muscle is a large, superficial **muscle** that spans the neck, shoulders and back.

- Your **oblique** muscle is a diagonally arranged abdominal muscle on either side of the torso.

- Your **hip flexors** are a set of leg muscles and ligaments that help control the turnout of the legs from the hip and are primarily responsible for lifting the leg upward.

MUSCLES AND JOINTS

The knee is a good example of how the bones meet to form joints, allowing our bodies to move.



BONE

The thick, sturdy bones of the knees give these joints the strength needed to support the weight of the body. The rounded shape of the ends of the bones that meet at the knee allow the knee to bend smoothly.

NEXT

MUSCLES AND JOINTS

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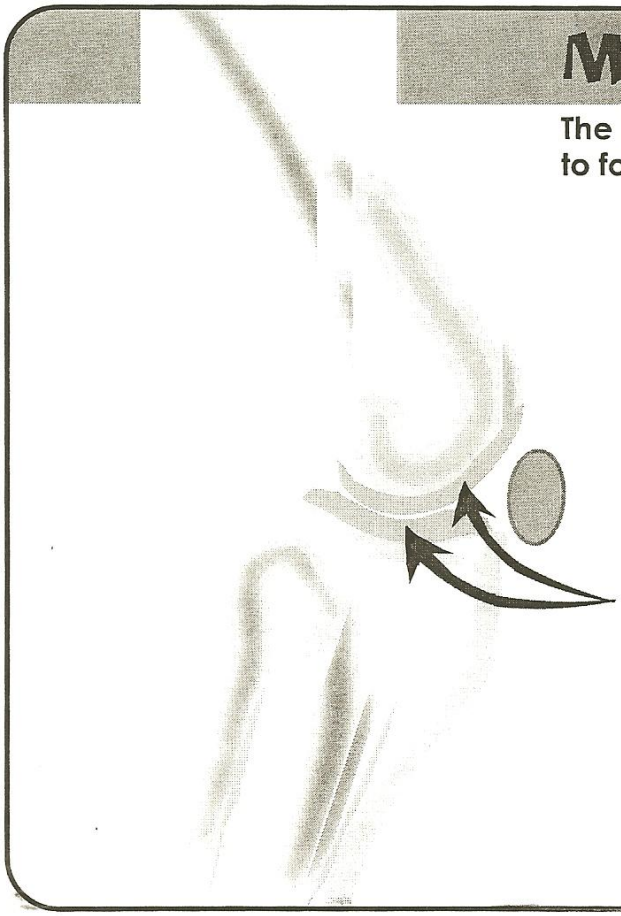
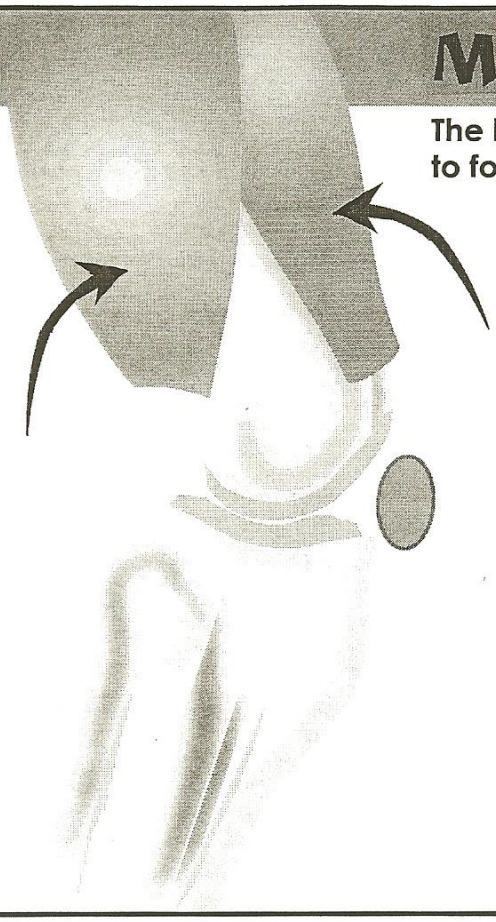


CARTILAGE

Cartilage - flexible, rubbery tissue at the ends of bones - cushions and protects the bones where they meet and rub against each other in a joint.

BACK NEXT

MUSCLES AND JOINTS



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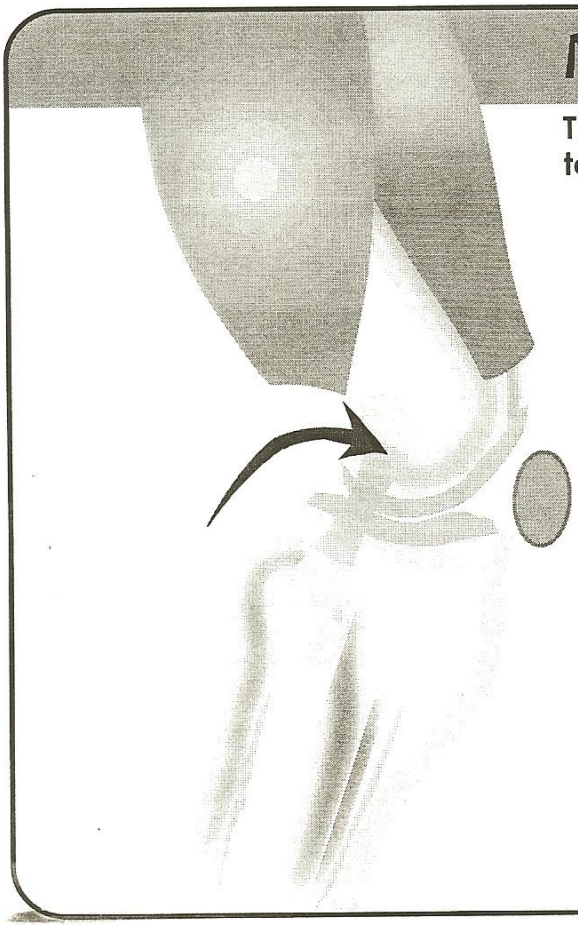
MUSCLE

Muscles provide the tug on the bones needed to bend, straighten, and support joints. Muscles can pull on bones, but they can't push them back to their original position, so the muscles work in pairs of *flexors* and *extensors*. The *extensor* muscle relaxes and stretches as the *flexor* muscle contracts to bend the joint. The *flexor* relaxes and the *extensor* contracts to straighten (or extend) the limb at the same joint. Muscles get their signals to contract and relax from the brain.

BACK NEXT

MUSCLES AND JOINTS



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LIGAMENT

Ligaments are long, fibrous straps that fasten bones together.

BACK NEXT

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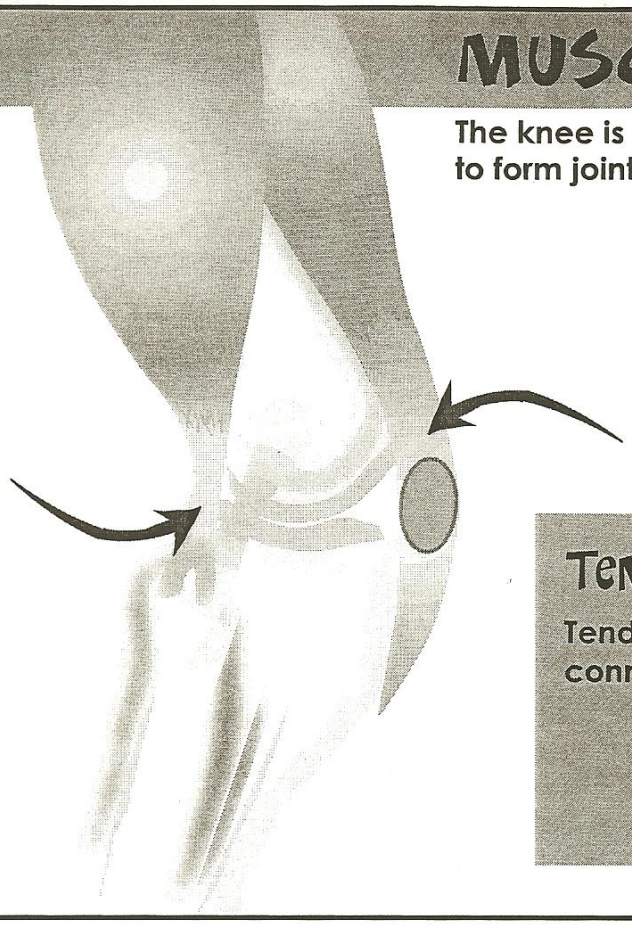

TENDON

Tendons are bands of fibrous tissue that connect muscles to bones.

BACK PLAY MOTION

MUSCLES AND JOINTS

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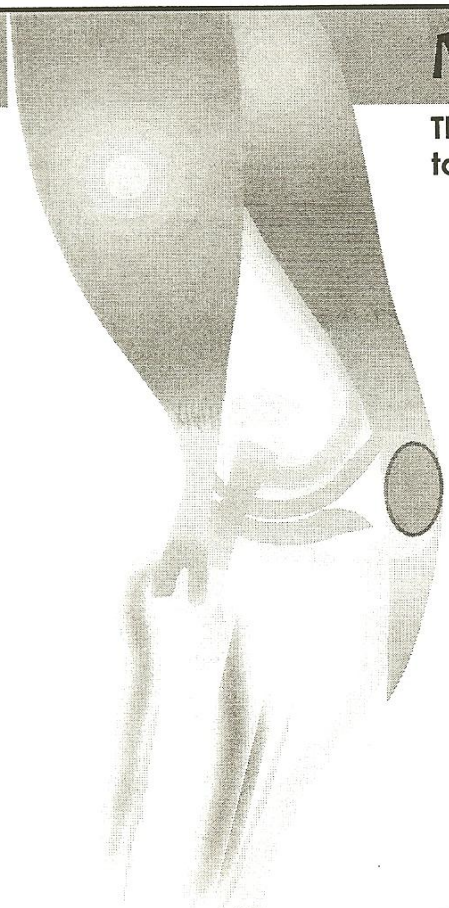

JOINTS

Joints like the knee are *hinge* joints. They move in one direction only.

PLAY AGAIN