

Muscles – everything you need to know... for now!

There are **three kinds of muscle**.

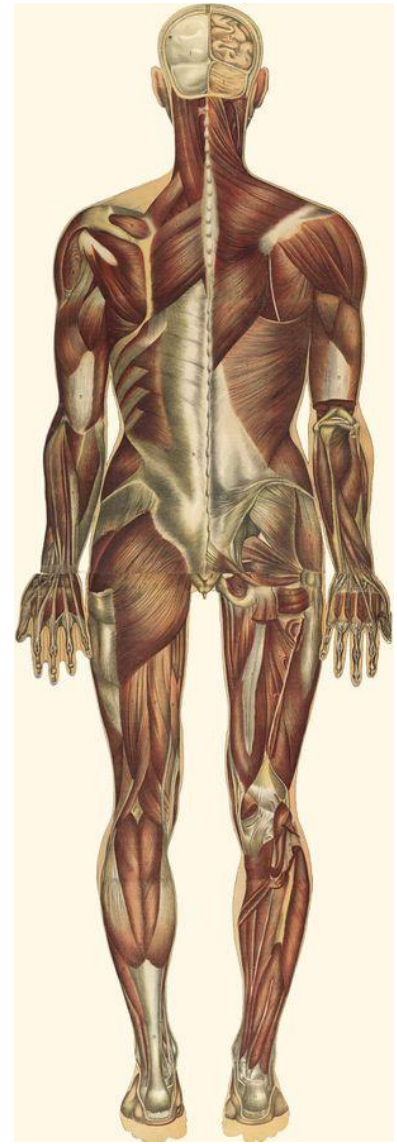
Two of them are striated – this means they have thin bands of a different kind of tougher muscle mixed into the wider strip of muscle. This is because they sometimes have to pull hard and suddenly, without much warning.

The three types of muscle are...

1. **Skeletal** – striated – attached to all your bones, usually by ligaments or tendons, to allow you to move yourself in big and small ways. There are around 639 skeletal muscles in your body
2. **Cardiac** – striated – only found in the walls of the heart
3. **Smooth** – non-striated – in the walls of almost everything hollow or tube-shaped in your body – lungs, intestines, arteries, veins, bladder, even eyeballs. Generally, this is in all the organs of the digestive and respiratory/circulatory systems except for the heart.

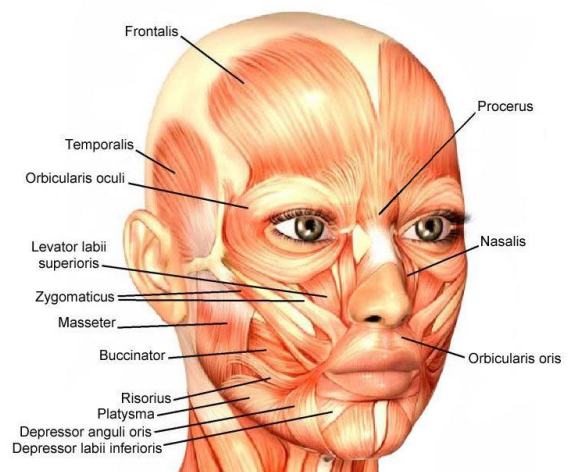
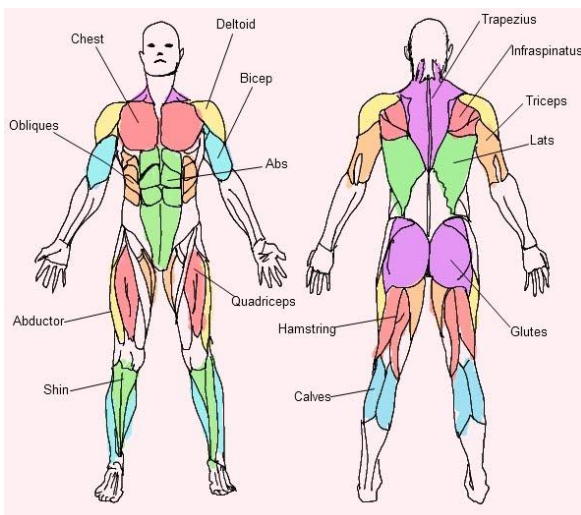
Moving a muscle is NOT like pulling on a rope. It is a bit more like stretching or squashing a thick elastic band.

As you use a muscle, the muscle itself becomes shorter or longer – it either becomes shorter and thicker or it becomes longer and thinner.



I have used an unlabelled diagram because every single muscle in your body has a name and most of these names are in Latin and complicated!

It is good to learn a few of them however...

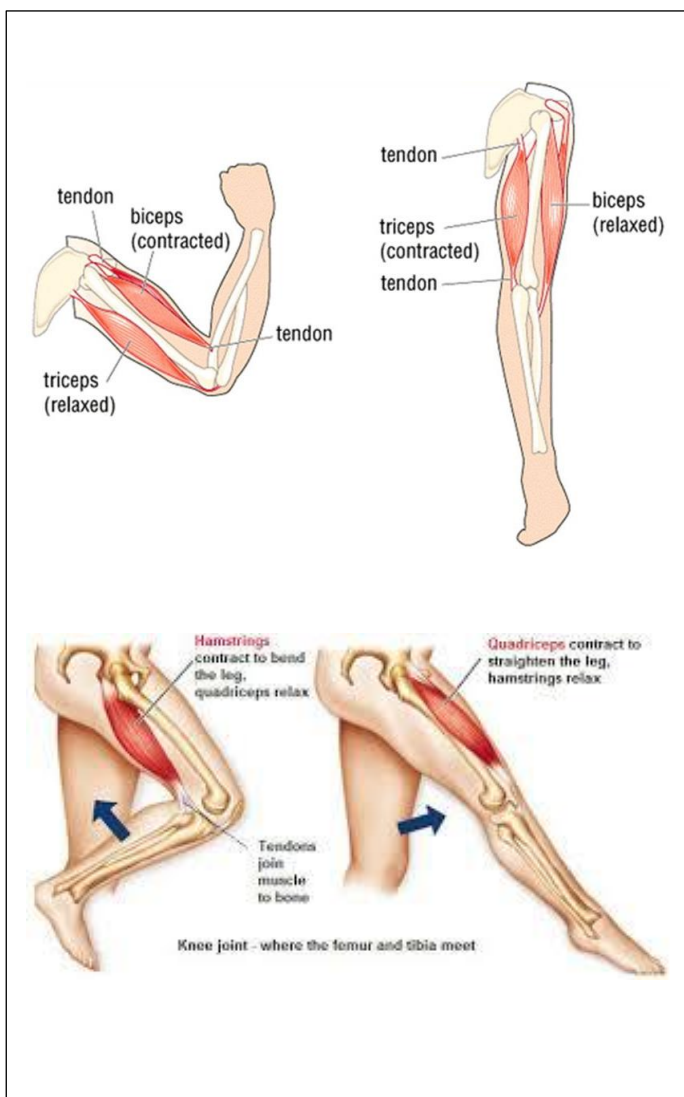


A lot of your muscle movement is **voluntary**. This means you do it on purpose, usually by deciding to move an arm, a leg, your head, your mouth, your little finger or whatever else. Some of this voluntary movement is so natural and quick that you don't need to think about it. If you are playing a video game or a ball game you don't really think about how much your hand or foot moves, you just do it as a natural reaction to what you see or feel. However, this still counts as voluntary movement because you do it on purpose.

The rest of your muscle movement is **involuntary**. Your body does this without you deciding to make it do so. This includes, your heart beating, your mouth and throat swallowing, your lungs and diaphragm (huge flat muscle below the lungs) moving as you breathe and your veins and arteries helping your blood around the body.

Generally, you cannot decide to change what your involuntary muscles do. For example, you cannot make your intestines move your food around more quickly just by deciding to do so!

If you are in a very clever mood because you have understood **everything** you have read here, you may have noticed that that means that the smooth muscles are involuntary and the skeletal muscles are voluntary. This is very nearly true but there are some odd complications such as the muscles that you blink with. These are both voluntary and involuntary – you can blink on purpose but your body does it a lot anyway.



Almost all of the muscles in your body **work in pairs**.

If you bend your elbow, pulling your hand towards your face, there is a muscle (in the front of your arm and 'inside' the joint of your elbow) that gets shorter (it **contracts**) to pull your hand inwards. At the same time another muscle (further back in your arm and 'sort-of-outside' the joint of your elbow) has to stretch and get longer (to **relax**) to let your arm bend.

When you straighten your arm again, the 'back and outside' muscle pulls and gets shorter (it **contracts**) while the 'front and inside' muscle goes back to its normal longer length again (it **relaxes**).

The other pairs of skeletal muscles everywhere in your body work in the same way – one stretches the other gets shorter and then they swap jobs to move back again.