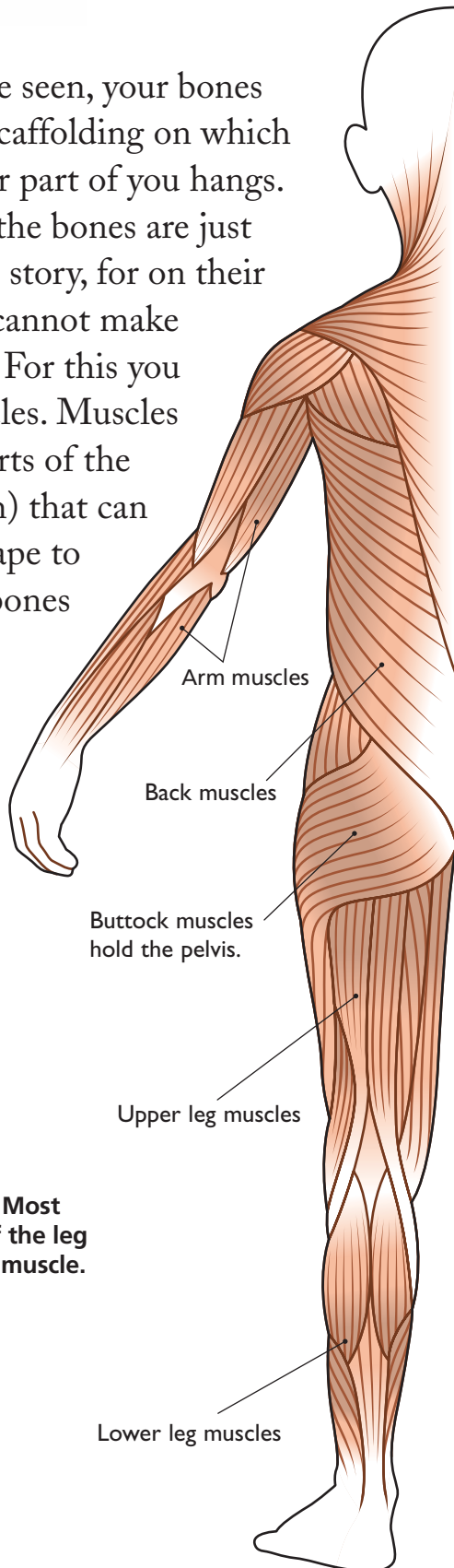




# Muscles move bones

**Bones have rounded ends so they can be moved. But to move them requires muscles.**

As we have seen, your bones form the scaffolding on which every other part of you hangs. However, the bones are just part of the story, for on their own they cannot make you move. For this you need muscles. Muscles are soft parts of the body (flesh) that can change shape to pull your bones into new positions.



► (Picture 1) Most of the bulk of the leg is made from muscle.

## A body filled with muscles

There are over 600 muscles in your body. Most of the bones are surrounded by muscles. The muscles fill out your body and are covered in a thin layer of skin. The muscles help you to move, and the skin protects all of the insides of your body.

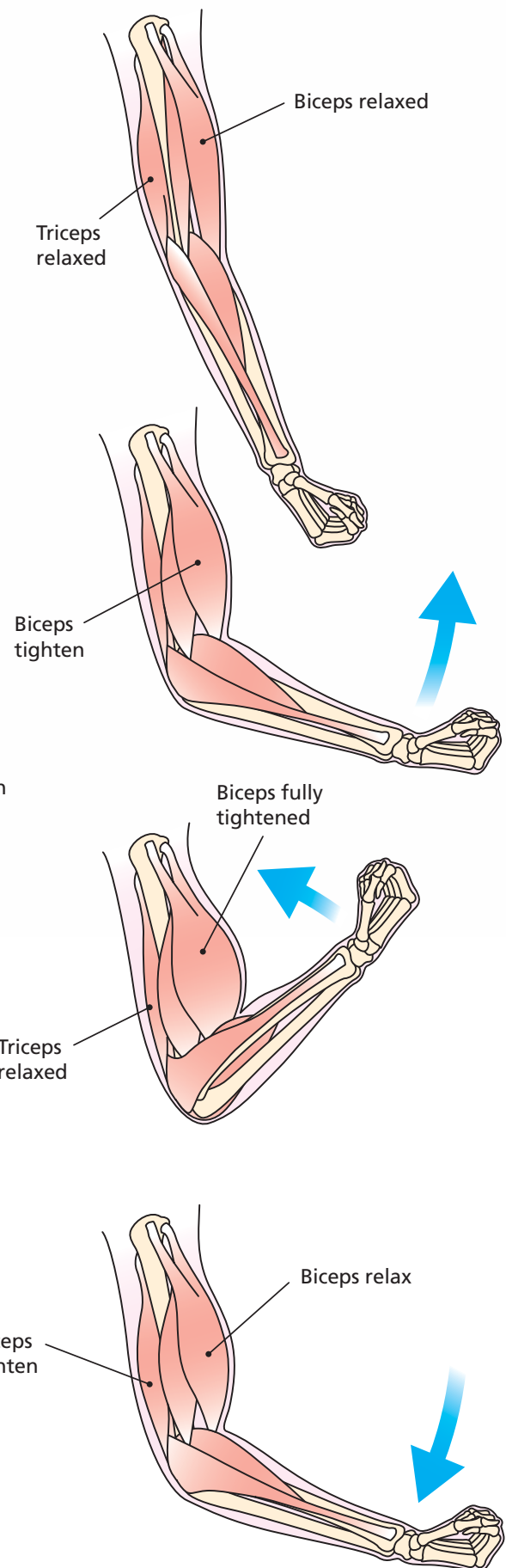
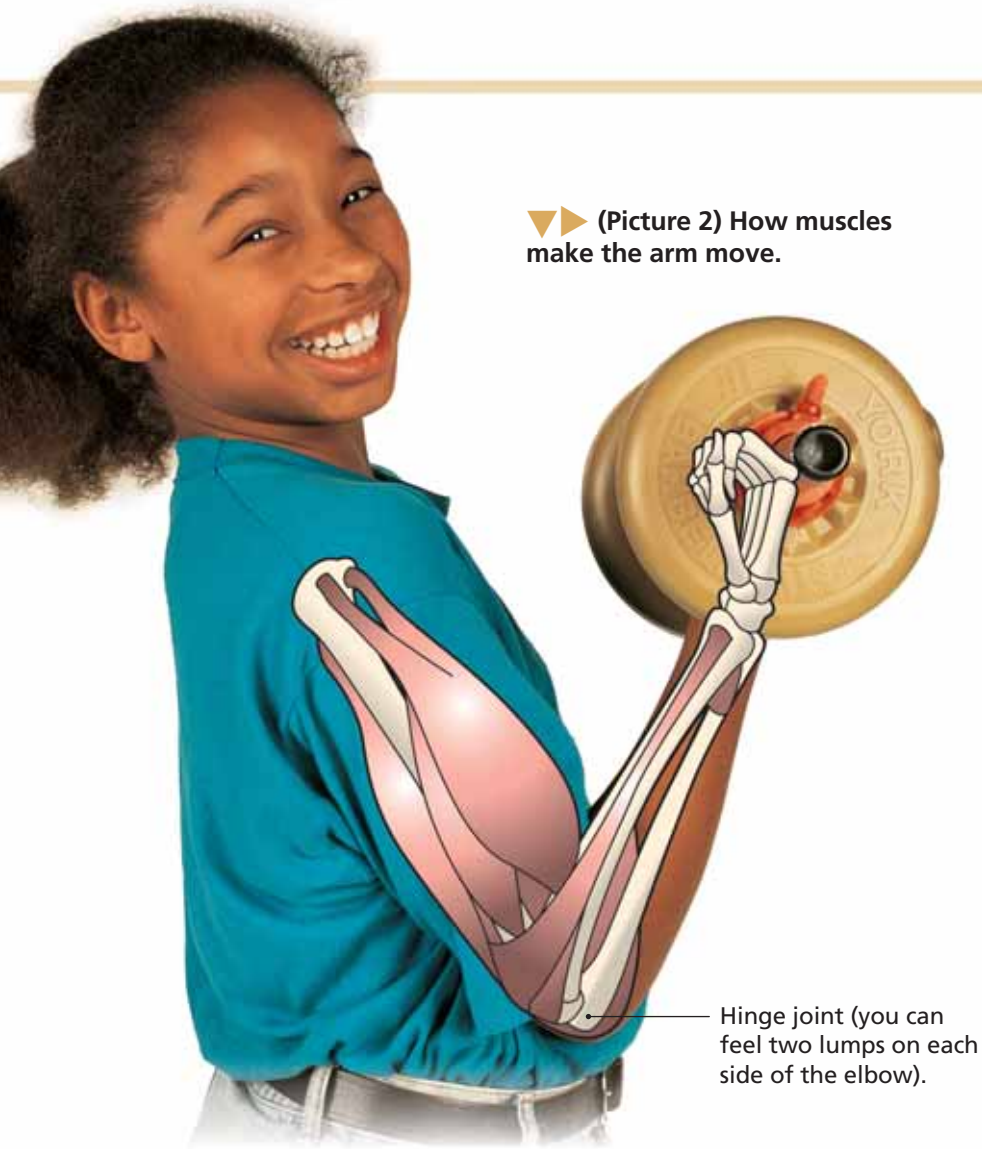
Some muscles need to be strong and so these muscles are large. The muscles in your legs are like this because they need to move your whole body (Picture 1). The muscles in your arms do not carry much weight and so they are lighter. The lightweight bones and smaller muscles explains why your arms are more slender than your legs.

## How muscles work

Muscles can only tighten or relax, they cannot push. Muscles become shorter when they tighten, and they become longer when they relax.

Muscles always work in pairs, one each side of a joint. This is why every joint in your body has at least two muscles. Most joints, however, are worked by groups of muscles.

When you are not moving, the muscles each side of a joint are both pulling by the same amount and nothing happens. When you want to move, your brain tells one of the muscles to tighten and shorten, while it tells the other to relax and lengthen.



## Muscles while we sleep

Muscles can never stop pulling while you are awake. If they did, your bones would not be held together properly and your body would lose its shape! Many muscles do relax, however, when we sleep, so then the body needs support. That is why we cannot sleep standing up.

### Summary

- Most bones are surrounded by muscles.
- Muscles work in groups.
- Muscles cause movement by tightening and relaxing.