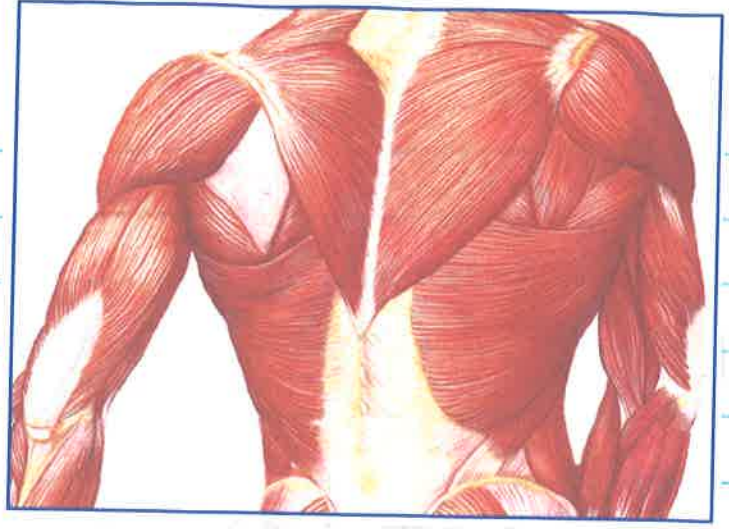


MUSCLES



Voluntary

- Muscles under your control
- Smiling
- Turning a page in a book
- getting out of your chair

Involuntary

- Responsible for activities such as breathing and digesting food.
- The beating of your heart.

To move, many parts of our body must work together.

Muscles move our skeletons by pulling on bones that meet at joints.

3 Types of Muscle

Skeletal
(striated)

Smooth

Cardiac

Fast Facts

- Muscles cannot push, they can only pull. They take turns pulling on bones to move our bodies.
- Limb bones are moved by muscles working in pairs.
- Bones that move are held in place by tissues called ligaments. Ligaments are slightly stretchy.
- Muscles are attached to bones by rope-like structures called tendons. These are NOT stretchy.
- Muscles are only able to contract, or shorten.

Antagonistic Muscles

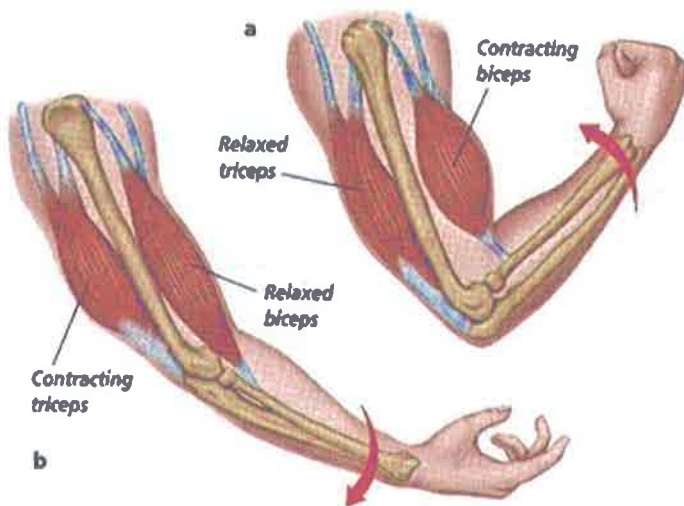
When muscles work in pairs to create movements, they are known as antagonistic muscles.

Biceps

Upper arm muscles used to bend the arm at the elbow.

Triceps

Muscles on the back of the arm used to straighten the arm.





Muscle Injuries

A sprain happens when a ligament is stretched too far. A "twisted ankle" is a sprain that occurs when the ligaments on the outside of your ankle are stretched too far.

A strain is similar to a sprain, but it happens with a muscle or tendon getting stretched too far.

Tendonitis - occurs when you "over-do" an activity, repeating it over and over again. (Tennis elbow).

Take Care of Muscles

Exercise is important to maintain strength and flexibility

~ Warm-up before exercising

~ Use safety equipment

~ Eat a balanced diet with plenty of protein:

- eggs
- fish
- meat
- beans
- tofu
- cheese



Muscle Cells Hard at Work



Muscle Fatigue - the tiredness you feel in your muscles. This happens when muscle cells use up energy supplies faster than they can be restored, and when waste products build up faster than they can be carried away.

When your muscle cells are called upon to work hard, they require more:

oxygen (so you breathe harder + deeper)

nutrients (so you become hungry)

Water (so you become thirsty)

Ways to get rid of waste (so you sweat)