

## OUR MUSCULAR SYSTEM

There are over 600 skeletal muscles in the body. All our movements happen as a result of **CONTRACTING** and **EXTENDING** of muscles. Our muscles enable us:

- Move our body parts.
- Give us our individual shape.
- Protect and keep in place abdominal organs.
- Enable us to maintain a good posture.
- Help in circulation of blood.
- Generate body heat when they contract.

### Type of muscles:

There are three main types of muscles based on the way they work:

**SKELETAL MUSCLES** or voluntary muscles (under our control). They make our body moves.

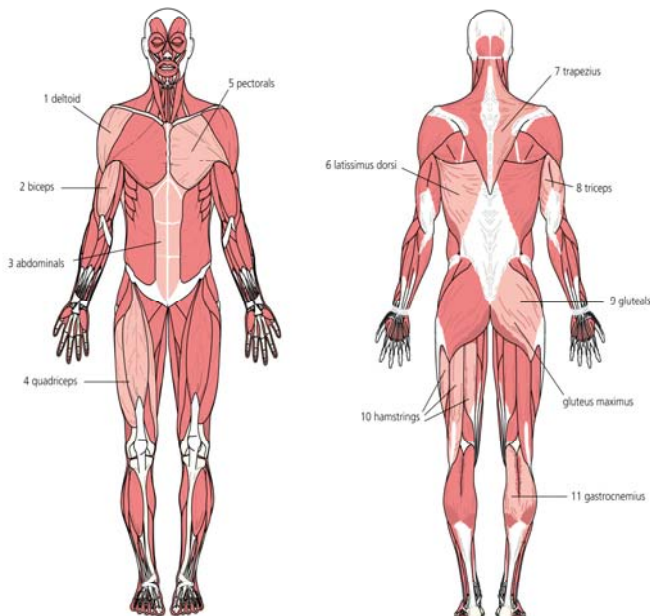
**SMOOTH MUSCLES** or involuntary muscles (no under our conscious control). They work our internal organs such as the stomach.

**CARDIAC MUSCLE**. This is a special type of skeletal muscle because is involuntary and only found in the heart.

### Our major muscles:

We divide the most important muscles in groups depending of where they work and how. **SHOULDERS, ARMS, LEGS, CHEST, UPPER BACK, LOWER BACK, ABDOMEN.**

### The muscular system



### How do the muscles work?

There are 3 types of muscular contractions:

**ISOTONIC CONCENTRIC:** Our muscles shorten as they contract.

**ISOTONIC ECCENTRIC:** Our muscles lengthen as they contract under tension.

**ISOMETRIC CONTRACTION:**

There is no movement; our muscles stay the same length.

### How do our muscles work in pair?

When a primer mover contracts, the antagonist must relax to allow a movement to take place.

### How does our body move?

When we play sports we move our limbs and trunk in different ways:

**EXTENSION** limbs straighten at a joint.

**FLEXION** limbs bend at a joint.

**ABDUCTION** limbs moved away from a line down the middle of the body.

**ROTATION** circular movement, some part turns as the rest remains still.

**ADDUCTION** limbs moved towards a line down the middle of the body.

**CIRCUMDUCTION** bone end moved in a circle.

### What are muscle fibres?

We have 2 different types:

**SLOW TWITCH (ST)** work long time without tiring, very good oxygen supply for aerobic activities 50%.

**FAST TWITCH (FT)** no good oxygen supply, tire very quickly, needed for explosive movements 50%