

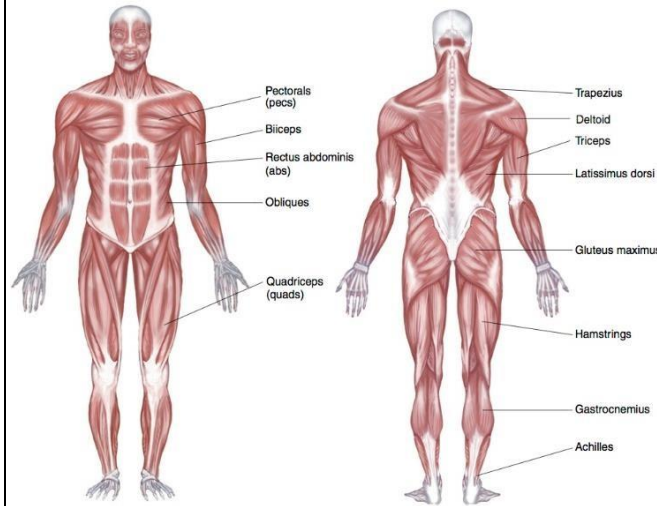
BTEC Sport Year 12-Unit 1 Learning aim B-The effects of exercise on the muscular system

B1 to B4

What are the different types of muscle?

Muscle type	Description
Skeletal	<ul style="list-style-type: none"> Also known as striated or striped
Cardiac	<ul style="list-style-type: none"> Voluntary control Muscles contract to create movement Found in the heart Involuntary
Smooth	<ul style="list-style-type: none"> Involuntary Found in the digestive system and blood vessels Aids digestion and helps regulate blood pressure

Where are the major muscles in the body?



What are the different types of muscle contraction?

Isometric-length of muscle does not change. Muscle holds a static position. E.g. the plank.

Concentric-muscle shortens. Sometimes known as the positive phase. E.g. flexing your arm in a bicep curl

Eccentric-muscle lengthens back to original size. E.g. extending arm in bicep curl. Known as negative phase.

What are antagonistic muscle pairs?

Muscles work in pairs by contracting and pulling to create movement.

Biceps and triceps are an antagonistic pair

The muscle that shortens is called the agonist or prime mover. The relaxing muscle is the antagonist

Origin-the fixed end of the muscle that remains stationary

Insertion-the end of the muscle that moves

Synergists- muscles that work together to enable the agonists to operate more effectively

Fixator- muscles stop any unwanted movement by stabilising the joint.

B5 to B8

How does the muscular system respond to a single sports session?

Increased blood supply
 Increased muscle temperature
 Increased muscle pliability
 Lactate (high intensity exercise)
 Micro tears (resistance exercise)

How does the muscular system respond to long term exercise?

Hypertrophy
 Increased tendon strength
 Increase in number and size of mitochondria
 Increase in myoglobin stores
 Increase in storage of glycogen
 Increase in storage of fat

What are the different fibre types?

Type	Description	Sporting examples
1	Slow twitch Contract slowly with little force Slow to fatigue Suited to aerobic activities (energy produced using oxygen) Rich blood supply High in mitochondria	Marathon
11a	Fast twitch Produce lots of force Resistant to fatigue Speed, power and strength	Weight training 400m
11x	Fast twitch Produce lots of force Tire easily Suited to anaerobic activity (without oxygen) High intensity, short duration	100m

What other factors can affect the muscular system?

Age- As you get older your muscle mass decreases. This begins at around 50 and is known as sarcopenia. Muscles become smaller, resulting in a decrease in muscle strength and power.

Cramp- Sudden involuntary contraction of muscle. Muscle spasm can be painful and can last up to ten minutes. Most common causes are dehydration. Stretching and water can help prevent cramp.