

Anatomy and physiology

Handball Year 7

RL

Musculoskeletal system

Humerus- Top of the arm from the shoulder to the elbow

Radius- Bone in the lower arm runs from your elbow to the base of your thumb

Ulna- Bone in the lower arm runs from your elbow to your little finger
Tendons attach muscles to bone.

Antagonistic muscle pairs

Biceps- Contracts when the lower arm flexes (flexion). Relaxes when the lower arm extends.

Triceps - Contracts when the lower arm extends (extension). Relaxes when the lower arm flexes.

Can you link these to shooting in handball?
(remember How R U?)

Respiratory system

Lungs

Working Muscles

Mouth

Gaseous exchange

- Oxygen is breathed in through the mouth
- It then enters the lungs and the chest cavity becomes larger.
- Oxygen is then diffused into the blood and transported to working muscles such as your biceps and triceps that need it when playing handball.
- Carbon dioxide is created by the working muscles and is a waste product.
- Carbon dioxide is transported by the blood back to the lungs and is breathed out

Cardiovascular system

Heart

Blood vessels

- **Arteries** - Carry OXYGENATED blood away from the heart
- **Veins** - Carry DEOXYGENATED blood to the heart

Cardiac Output = Stroke volume x Heart rate

Cardiac Output- The volume of blood pumped out of the heart in 1 minute

Stroke Volume - The volume of blood pumped out of the heart per beat

Heart Rate - How many times the heart beats per minute.

When you play handball your cardiac output increases due to the increased demand for oxygen by your working muscles.

COMMAND WORDS

Describe - Set out characteristics. Give a brief account

Explain - make an idea clear to someone by describing it in more detail or revealing relevant facts.

Compare- Identify similarities and or differences

Justify - Support a case with evidence (e.g. link it to sporting movements)

Identify - Name or otherwise characterise

Aerobic - Exercise whilst using oxygen (e.g. jogging for long periods of time)

Anaerobic - Exercise without using oxygen (short, fast movements such as shooting or sprinting in handball. Lasts a few seconds)

Short term effects of exercise (what happens straight away)

Increased stroke volume
Increase in blood pressure
Increased breathing rate
Increase in heart rate

Long term effects of exercise

Decrease in resting heart rate
Increased maximum cardiac output
Increased lung capacity

How can you link anaerobic and aerobic exercise to different parts of handball? Compare running around for 60 minutes in a game (aerobic) to shooting powerfully at goal (anaerobic).

Synovial Joints used in handball

Hinge joint- Elbow and Knee
Ball and socket- Shoulder and Hips

The hinge joint at the elbow allows flexion and extension. When throwing, passing and shooting the handball extension at the elbow occurs.

LINK EVERYTHING BACK TO YOUR SPORT!!

