



# Short term effects of fitness training on the musculoskeletal system



Previous lesson recall- can we remember....

- What do Ligaments do?
- What do Tendons do





Previous lesson recall- can we remember....

- Connecting bone to bone = Ligaments – they hold the joint together, they are tough and slightly elastic, they help prevent the bones moving too far and therefore stopping dislocation.
- Connecting muscle to bone = Tendons, they ensure when the muscle contracts, the effort is transferred to the bone to make the bone move and create the desired movement

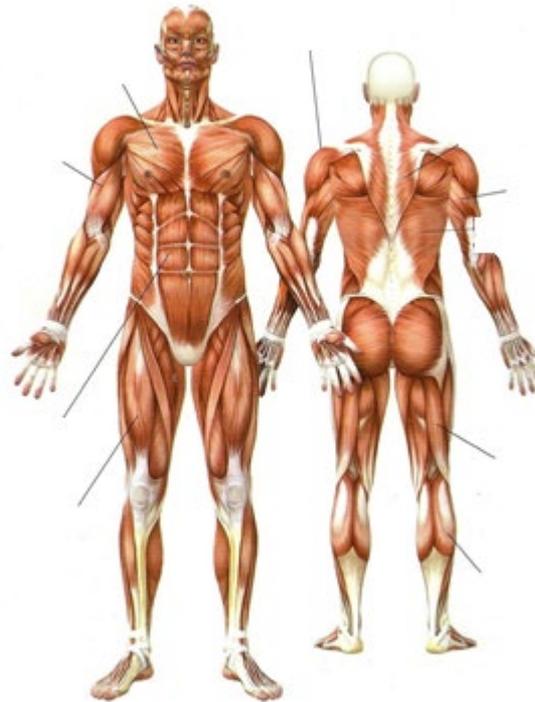




# Location of the major muscles

Starter task -

How many of the muscles can you match up to their correct names.  
The next slide will provide you with the 11 muscles you need to know.  
Complete in pencil first.





**Deltoid**

**Biceps**

**Triceps**

**Pectoralis major**

**Latissimus dorsi**

**External obliques**

**Gluteus maximus**

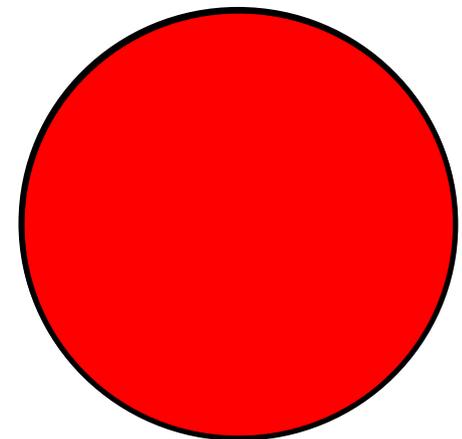
**Quadriceps**

**Hamstrings**

**Gastrocnemius**

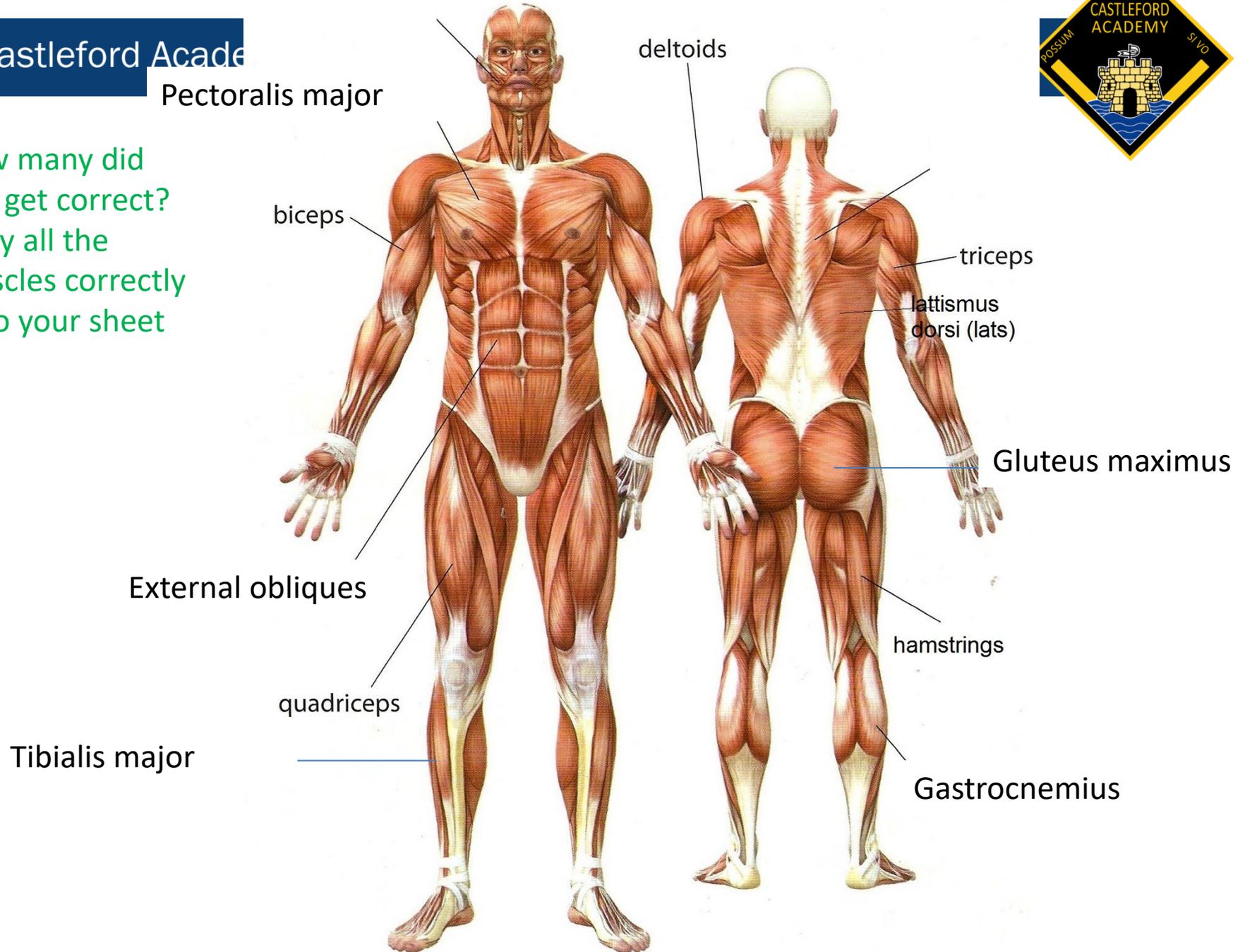
**Tibialis anterior**

5 minutes





How many did you get correct?  
Copy all the muscles correctly onto your sheet





## Activity 2

Label a new blank sheet of the muscles

This is to go in your folder / on powerpoint



## Learning Focus – Short term effects of fitness

### Learning outcomes

1. Summarise the short term effects on the musculoskeletal system during a fitness training programme (pass)
2. Explain the short term effects on the musculoskeletal system during the fitness training programme (merit)



# What is a warm up

1. Why do we warm up? (Pass)
2. What should be included in a warm up? (Pass)
3. Describe how the use of a warm up and flexibility exercises increase joint range of movement? (Merit)
4. During your 6 week training programme, explain a specific example of when you did a warm-up and a reason why? (Merit)
5. What would have happened in your training you didn't do a warm-up and flexibility training and reason why? (Distinction)



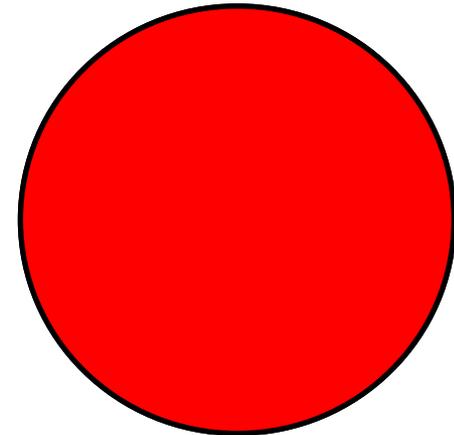


# Short term effects of exercise on the muscular system



Mo Farrah is about to start his 5000m race  
what do you think the immediate effects  
would be on his muscular system?  
Complete a paragraph

5 minutes



Key areas to consider: Increased blood  
supply, increased muscle pliability and  
increased range of movement.

Extension – can you explain how these effects may impact a sports  
performer?



# Planning for progressive overload

## In your training programme how did you apply progressive overload?

Use the following terms: *progressive overload, micro fibre tears, repair stronger, muscle tears, DOMS*

*I used progressive overload by...*

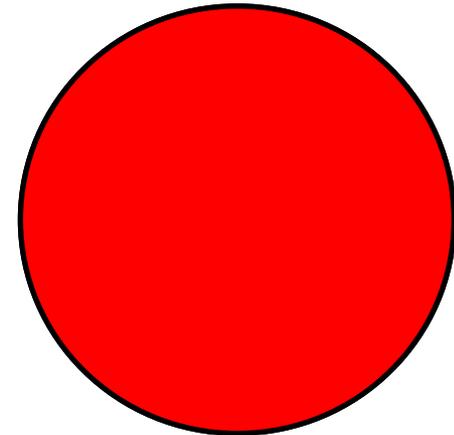
*This impacted on my muscle fibres by...*

*Progressing my training gradually reduced DOMS by...*

Micro tears in muscle fibres (our muscles tear muscle fibres and rebuild themselves into stronger muscle fibres and this increases the density of the muscles)



5 minutes





## Short term / immediate effects of exercise on the muscular system

- Lactic accumulation
- Muscle fatigue
- Increased demand for oxygen to the working muscles
- Muscle temperature increases

2 mark question: why do you think the two ones in green occur immediately to the muscular system?

2:00

Extension

Can you explain the terms Lactic accumulation and muscle fatigue and how they affect performance?



# Short term/immediate

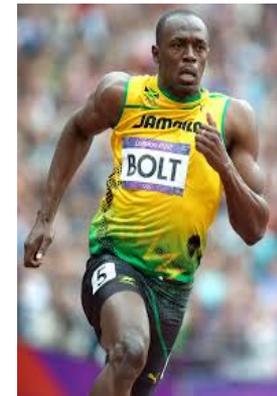
- Increased demand for oxygen to the working muscles – due to the muscles needing energy therefore more blood is transferred to the working muscles for oxygen and nutrients to create energy.
- Muscle temperature increases – as a direct influence of blood flow to the working muscles, therefore increasing the pliability of the muscles and range of movement



**Lactic Accumulation and Muscle Fatigue**– this is the name given to the process of lactic acid accumulating within the blood and muscles. Lactic acid is a by-product formed when the body is exercising at a high intensity (Anaerobically- working at a high intensity which means the body can not use the oxygen to create the energy). This will then cause muscle fatigue. (A reduction in a muscle’s ability to produce force).



Which athlete will accumulate more lactic acid (Mo or Usain)? Can you explain why using the above definitions. Furthermore, can you then expand on how muscle fatigue could have an impact on the footballer.





- What should be completed
  - Ligaments and tendons
  - Location of muscles
  - Warm ups
  - Short term effects
  - Short term and immediate effects