

Lesson 1

BTEC Unit 17: Sports Injury Management



Introduction to the unit...



In this unit you will:

A: Understand common sports injuries and their associated physiological and psychological responses (assignment 1)

B: Explore common treatment and rehabilitation methods (Assignment 2)

C: Investigate risk factors which may contribute to sports injuries and their associated prevention strategies (assignment 3)

In learning Aim A we need to do the following

Pass	Merit	Distinction
Learning aim A: Understand common sports injuries and their associated physiological and psychological responses		
A.P1 Discuss common acute, overuse sports injuries and symptoms, and red flag symptoms. A.P2 Explain how the body responds physiologically and the mind psychologically to sports injuries.	A.M1 Assess common acute, overuse sports injuries and symptoms, with specific examples of injury mechanism and aetiology. A.M2 Assess the physiological and psychological response to sports injuries, with regard to the stages of injury, using specific examples.	A.D1 Analyse common sports injuries and symptoms, and the physiological and psychological responses to these with specific examples of injury mechanism and aetiology.

1. P1/M1 is what we are going to tackle first.
2. Followed by P2/M2
3. Followed by D1
(so 3 separate tasks if you will)

Evidence: Power point slides

Have you ever had a sports injury?

- What happened?
- How was it caused?
- How was it treated?
- Any further problems after?



Look away if you're squeamish!!!

<https://www.youtube.com/watch?v=KqHhKdDD9ic>

<https://www.youtube.com/watch?v=KqHhKdDD9ic>

What are the different injuries in sport???

There are two types of injuries...

A1 Acute injuries

The common signs and symptoms specific to each injury should be addressed in addition to general signs of acute injury.

- Bone – fractures, e.g. transverse, oblique, spiral and comminuted.
- Articular cartilage:
 - osteochondral
 - meniscal tear.
- Joint:
 - dislocation
 - subluxation.
- Ligament sprain/tear – grade I, II, III.
- Muscle strain/tear – grade I, II, III.
- Haematoma – inter and intra.
- Cramps.
- Acute compartment syndrome.
- Tendon:
 - partial and complete tear
 - tendonitis (tendonitis should be discussed with regard to the wider research evidence in conjunction with tendinosis, tendinopathy, mechanism and stages of injury).
- Bursa – traumatic bursitis.
- Skin:
 - abrasions
 - lacerations
 - puncture wounds
 - contusions.

A2 Overuse injuries

- Bone:
 - stress fracture
 - osteitis
 - apophysitis.
- Articular cartilage – chondropathy.
- Joint:
 - synovitis
 - osteoarthritis.
- Ligament – inflammation.
- Muscle:
 - chronic compartment syndrome
 - muscle focal thickening.
- Tendon:
 - tendinopathy including tendonitis
 - tendinosis
 - paratenonitis
 - tenosynovitis.
- Bursa – bursitis.
- Skin:
 - blister
 - callus.

First task

A1 Acute injuries

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- You will go through 8 different injuries.
- You will have the notes printed but highlight or add additional notes/links in
- You will then pick your favourite 5 that you know the most about
- You will then start a power point presentation where you can write about it

(Don't worry I will show you a model on how you should do this later)

A1: Acute injuries in Sport

Acute injury is a sudden **injury** that is usually associated with a traumatic event such as clashing into another player during sports or a fall from a bike.

Your body undergoes changes during this period and often it is a **negative** one.

A traumatic impact can cause your bone to crack, muscles to tear or ligaments to



Bones-Fractures

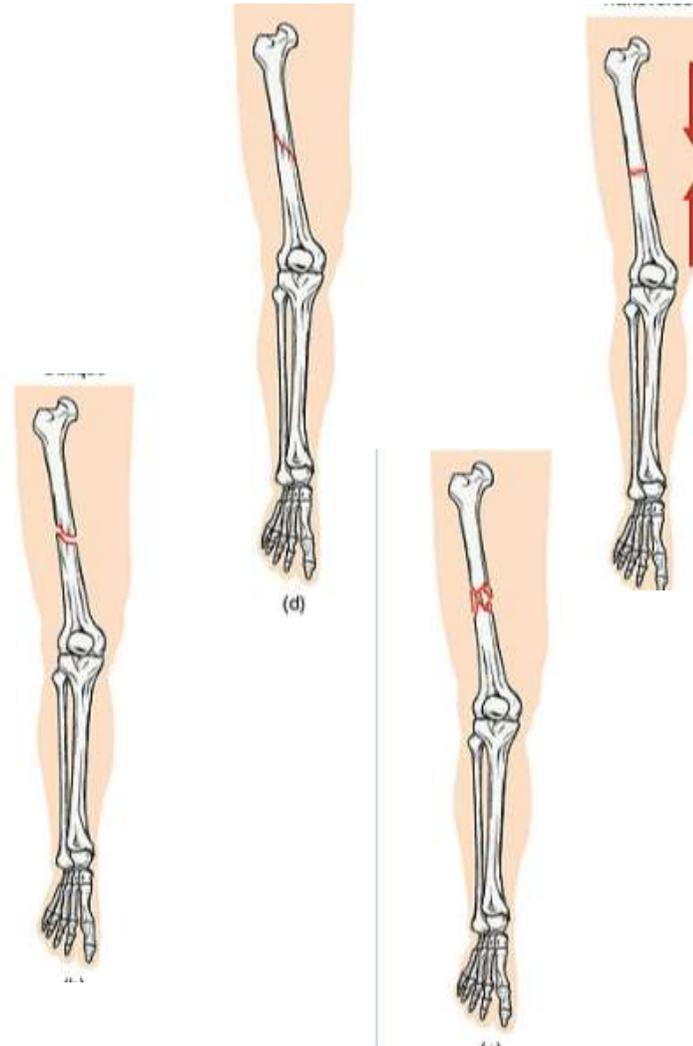
There are 4 types of bone fractures:

-Transverse-they form upright (perpendicular) to the long axis of a bone and are the result of a force applied at a right angle to the bone.

-Oblique-are slanted fractures that occur when a force is applied at any angle other than a right angle to the bone.

-Spiral-are the result of an extreme twisting force being exerted on a bone.

-Comminuted-severe fractures that involve the breaking of a bone into several smaller pieces. Something landing on them (heavy weight)

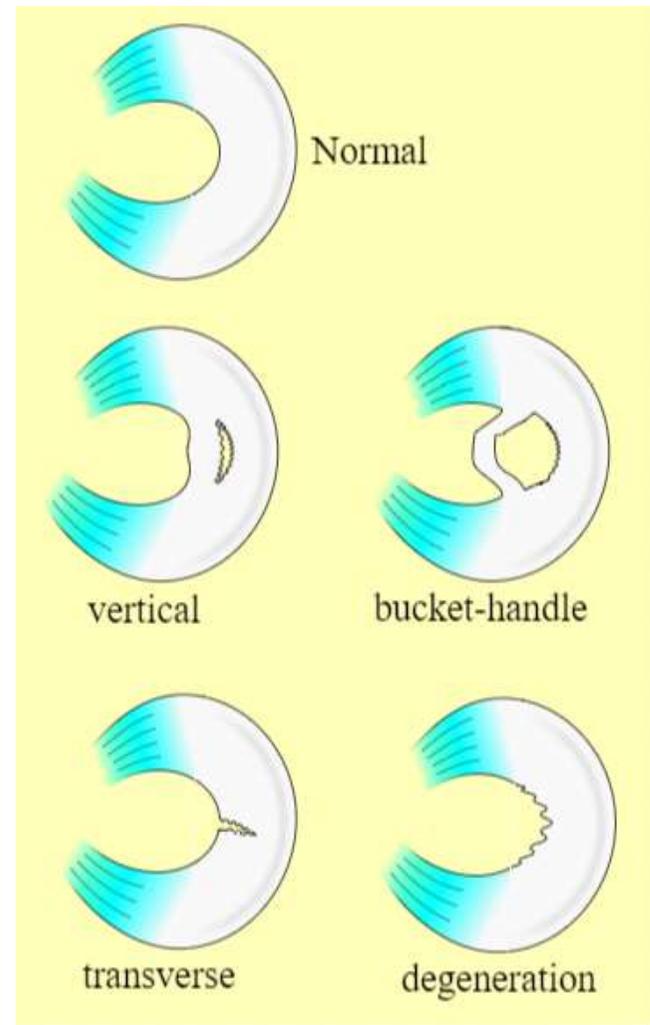


Articular Cartilage

Cartilage is a rubber-like padding that covers and protects the ends of long bones at the joints.

There are two types of injuries that can occur to Cartilage:

1. **Osteochondral**- lesions (cuts) can occur in any joint, but are most common in the knee and ankle. Such lesions are a tear or fracture in the cartilage covering one of the bones in a joint. In the knee, such cartilage damage can occur between the femur (thigh bone) and the tibia (shin bone).
2. **A meniscal tear**-This is one of the most frequently occurring cartilage injuries of the knee. So what is the meniscus? It's a piece of cartilage in your knee that cushions and stabilizes the joint. It protects the bones from wear and tear. But all it takes is a good twist of



Joint injuries

There are two types of injuries that can occur at a joint:

1. **A joint dislocation:** also called luxation, occurs when there is an abnormal separation in the joint, where two or more bones meet. Dislocations are often caused by sudden trauma on the joint like an impact or fall.
2. **Subluxation:** This is where there is partial dislocation to a joint. Where it hasn't fully been removed from its normal position but almost. Can happen from a rugby tackle done wrong or submitting someone in a UFC fight before they tap out (usually before a joint comes out properly as its too painfull)

Normal



Subluxation

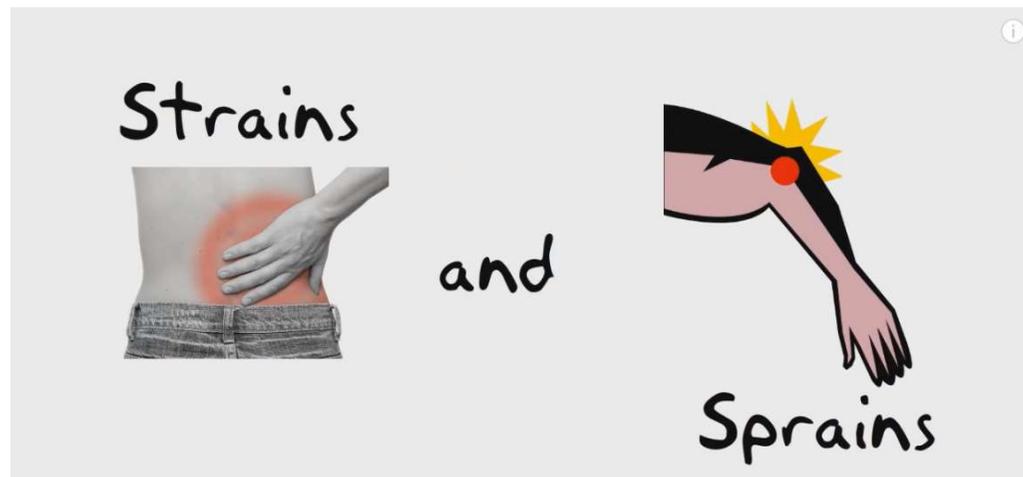


Complete dislocation



Before the next two slides...something important...

Strain OR Sprain, what's the difference?



Ligament sprain/tear

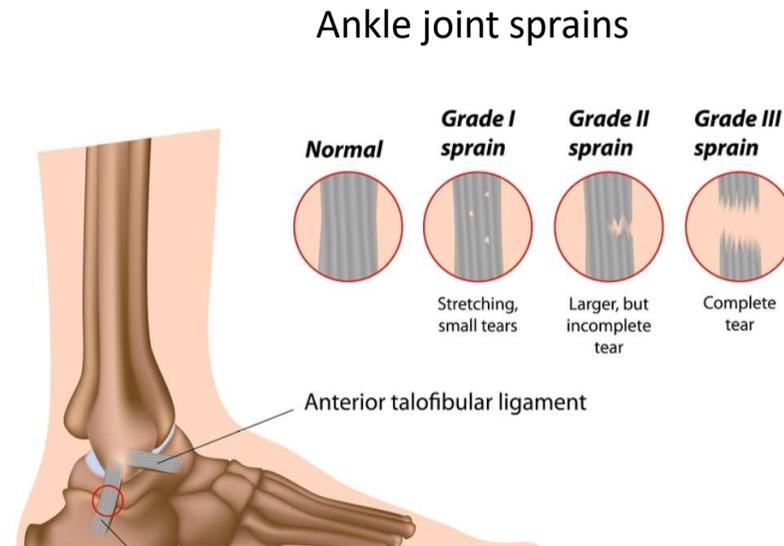
-A sprain is a stretching or tearing of **ligaments**.

-Ligaments are the tough bands of fibrous tissue that connect two bones together in your joints.

-Don't get them confused with tendons (muscle to bone)

There are 3 types of sprains:

Grade I, II III



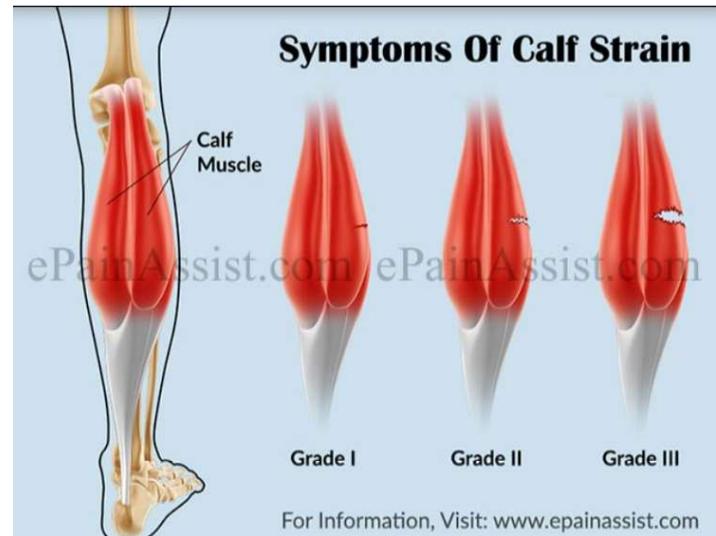
Muscle strain/tear

-A muscle strain, or pulled muscle, occurs when your muscle is overstretched or torn.

-This usually occurs as a result of fatigue, overuse, or improper use of a muscle.

-Strains can happen in any muscle, but they're most common in your lower back, neck, shoulder and hamstring.

-Again there are 3 grades of strains: Grade I, II, III



Haematoma

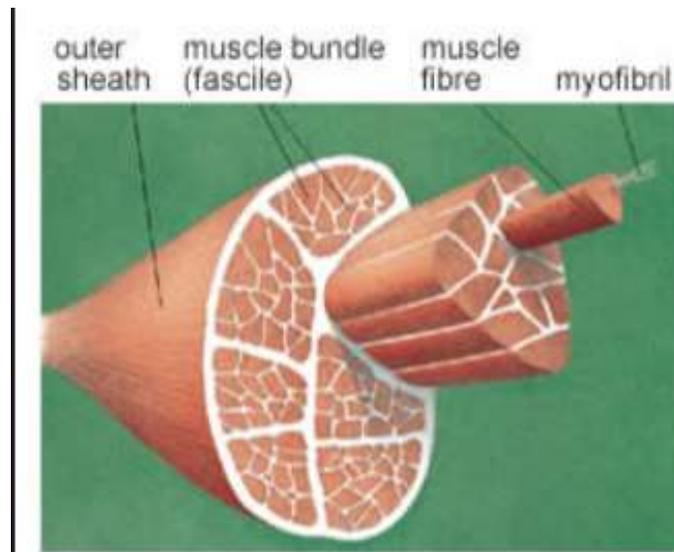
When you have a muscle strain and the muscle tears, you can get bleeding.

This is known as a haematoma it is different to a bruise (don't get confused).

There are two types of haematoma known as:

- Intermuscular
- Intramuscular

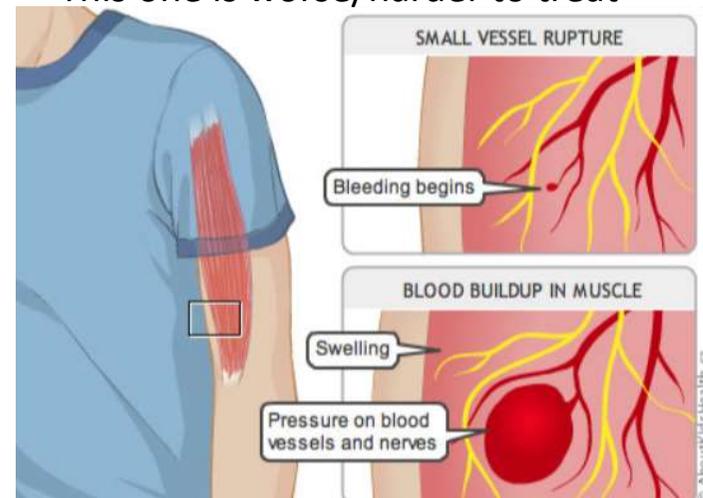
More info on next slide.



•Intramuscular

This injury only effects the muscle fibre tissue and therefore bleeding is contained within the sheath that surrounds the muscle. Pressure within the muscle builds up which can become very painful. The fluid is unable to escape as the muscle sheath prevents it, acting like a balloon. Healing takes longer as bleeding stays in one area and has to be broken down. You are less likely to see visible bruising.

This one is worse/harder to treat



•Intermuscular

This type of injury includes the muscle and also the muscle sheath and therefore bleeding is not contained and can spread (for example with gravity). Initial bleeding can last longer, however recovery is often faster than intra muscular as the blood and fluids can flow away from the site of injury. You are more likely to see bruising.



Muscle Cramps

-A muscle cramp is a strong, painful contraction or tightening of a muscle that comes on suddenly.

-It can last from a few seconds to several minutes.

-It often occurs in the legs.

-Can be caused by overuse, dehydration (lack of salt) or an underlying injury.



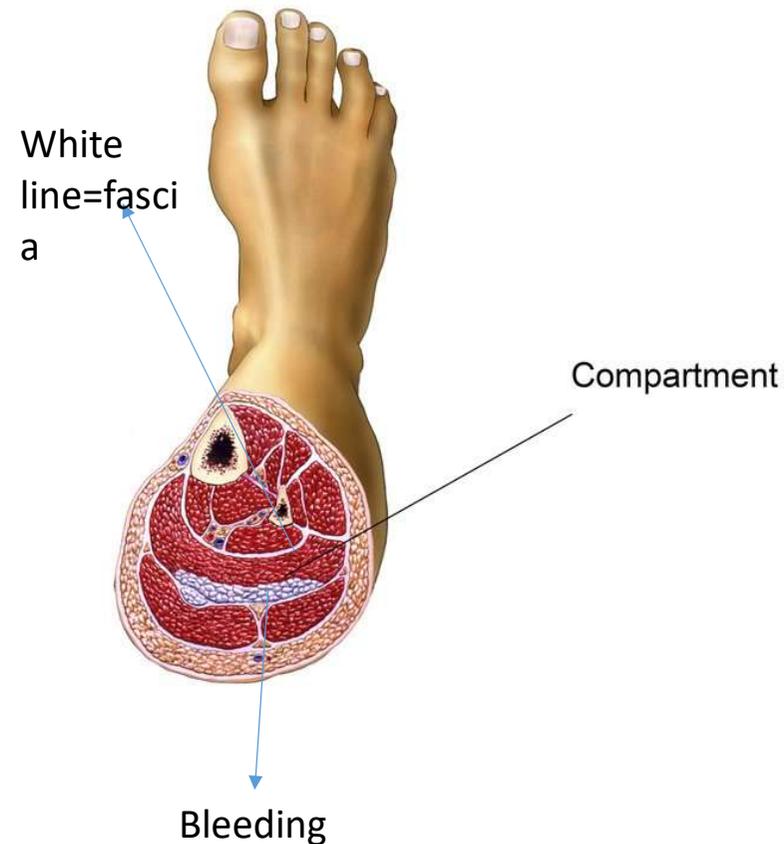
Muscles-Acute compartment Syndrome

-Compartment syndrome is a painful and potentially serious condition caused by bleeding or swelling within an enclosed bundle of muscles – known as a muscle compartment.

-Each group of muscles in the arms and legs, together with nearby blood vessels and nerves, is contained in a space surrounded by tissue called fascia.

-Acute compartment syndrome:

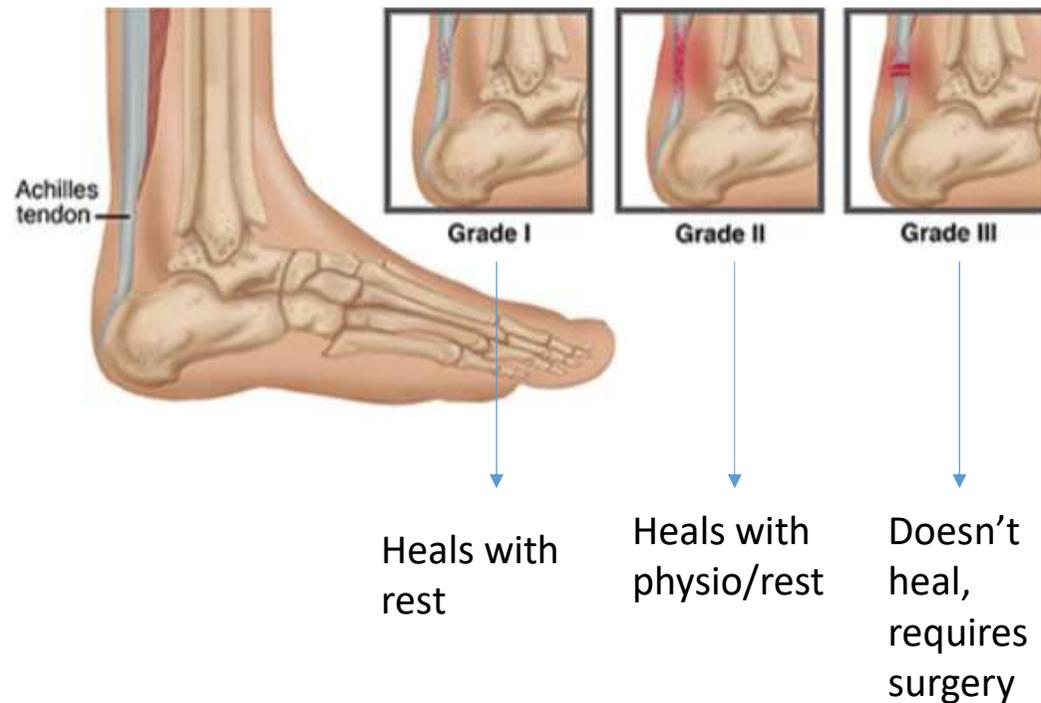
- happens suddenly, usually after a fracture or severe injury
- is a medical emergency and requires urgent treatment
- can lead to permanent muscle damage if not treated quickly



Tendons-partial tears/full tears

- Tendons connect muscles to bones
- Lots of fibres bundled up together
- They can tear partially or completely
- Usually tear in the foot and ankle
- Will NOT repair if a grade 3 tear

Achilles tendon tearing

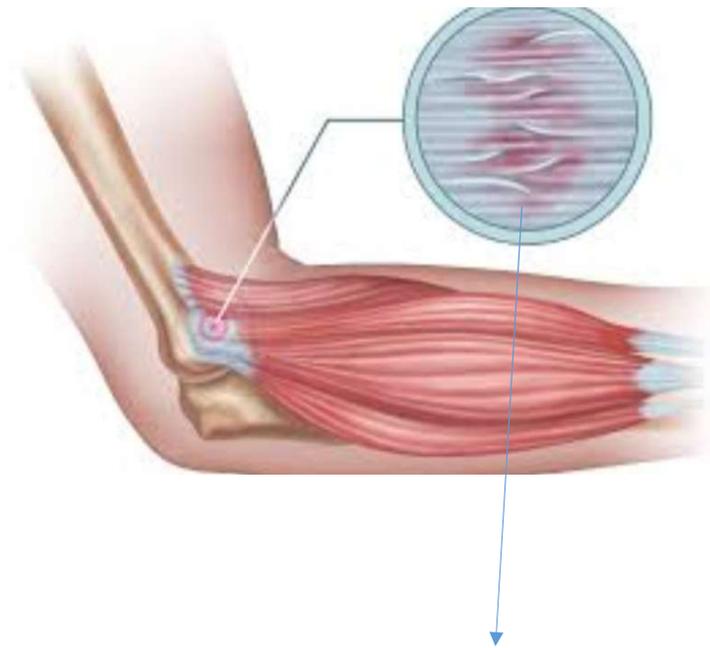


Tendons-Tendinitis x 3 slides

- Tendinitis is inflammation or irritation of a tendon.
- The condition causes pain and tenderness just outside a joint.
- While tendinitis can occur in any of your tendons, it's most common around your shoulders, elbows, wrists, knees and heels.



Tennis Elbow



Think of this like uncooked spaghetti, it is meant to be straight and connected. Not like when it is cooked and all wobbly.

Tendons-Tendinitis (cont)

!!!MEGA IMPORTANT!!!

With this section, its important to remember that you get tendinitis because of underlying conditions:

- Tendinosis: is degeneration (breaking down) of the tendon's collagen (Chemical which makes it strong) in response to chronic overuse
- Tendinitis: is the inflammation of the tendon and results from micro-tears
- Tendinopathy: A Disease of the tendon

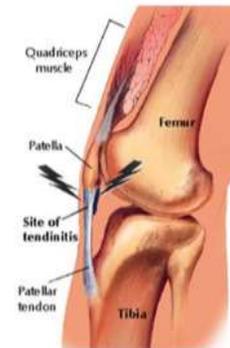
The idea is, when there is one of these **UNDERLYING ISSUES** it can cause an overall tear, so it doesn't have to just be from a sporting injury.

Tendons-Tendinitis (cont)

There are stages to this type of acute injury, it may not JUST happen...

Jumper's Knee (Patellar Tendonitis)

- Inflammation of the patellar tendon close to the patellar attachment
- Overuse injury due to explosive jumping
- Damage occurs during landing
- **Stage I:** Pain after activity
- **Stage II:** Pain during and after activity
- **Stage III:** Same as in phase II, but with diminished performance
- **Stage IV:** Complete rupture of the tendon, acute loss of extension accompanied by a painful noisy snap

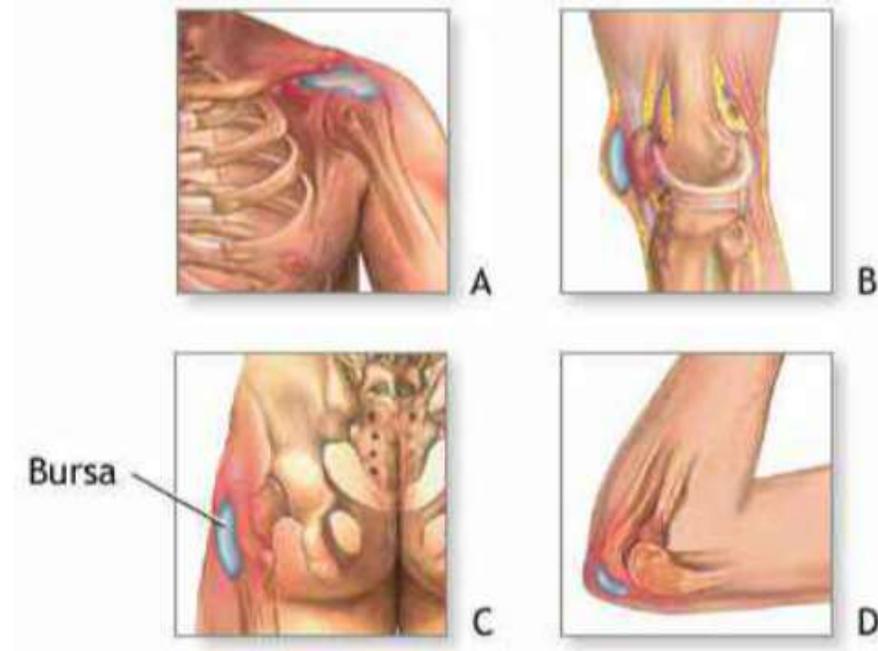


Bursa-Traumatic Bursitis

-A Bursa is a fluid-filled sac or sac-like cavity, especially one countering friction at a joint (knee, hip, shoulder, elbow)

-Bursitis is inflammation and swelling of a bursa. The main symptoms of bursitis are pain, swelling and tenderness in the affected area.

-Traumatic Bursitis is another cause of bursitis is a traumatic injury. Such as landing on your knee and compressing (squashing) the joint



Skin injuries

These are broken down into 4 different categories below:

Skin Injury	Abrasions	Lacerations	Puncture Wounds	Contusions
What is it?	Scraping or wearing away skin	A deep cut or tear to the skin	Occurs due to something sharp and pointed piercing the skin, can get infected	Injured tissue or skin in which blood capillaries have been ruptured; a bruise.
How might it happen?	-Falling off the bike in the Tour De France TARMAC	-Split eyebrow in UFC/Boxing -Wayne Rooney cut	Shins of a cyclist when the pedal hits their leg	Cricket ball hitting the leg at high speed
				

Task 1

- Now we have gone through all 8 categories-you need to pick 5
- Write them on a post-it note and show me
- You will now need to start a power point presentation that will have your chosen 5 ACUTE injuries
- Think of each slide as a poster, with as much information on it as possible
- I will put a slide up on the next slide to show you how to do this
- I will also create a checklist that you can tick off each time you do a new slide (To make sure you have everything you need)

Checklist FOR EACH INJURY

1. State that it is acute-what does the word acute mean
2. Name of injury
3. Description of injury
4. Pick a sport/athlete (name) that it has happened to and explain how it happened to them, the situation they were in, what caused the injury (them or someone else) (you will need to research this-make a note of where you got the info from so reference the website or book)
5. A picture of the injury
6. Labels on the picture
7. How the injury should be treated (again YOU can research this)
8. Signs/Symptoms of the injury

Example of slide

On the next slide is an example of all 8 points I am expecting to see on each slide. It is important that you check them before submitting them so you don't miss anything off 😊

Tendon Tear

An acute injury, so this happens immediately whilst playing a sport.

An example of someone who may experience this is Kobe Bryant, who plays Basketball for the LA Lakers.

On April 12th 2013 he went to change direction and felt his Achilles 'Pop' a term often used to describe the sensation of

Source: Ill tear.

<https://bleacherreport.com/articles/1856278-timeline-of-kobe-bryants-return-from-devastating-achilles-injury>



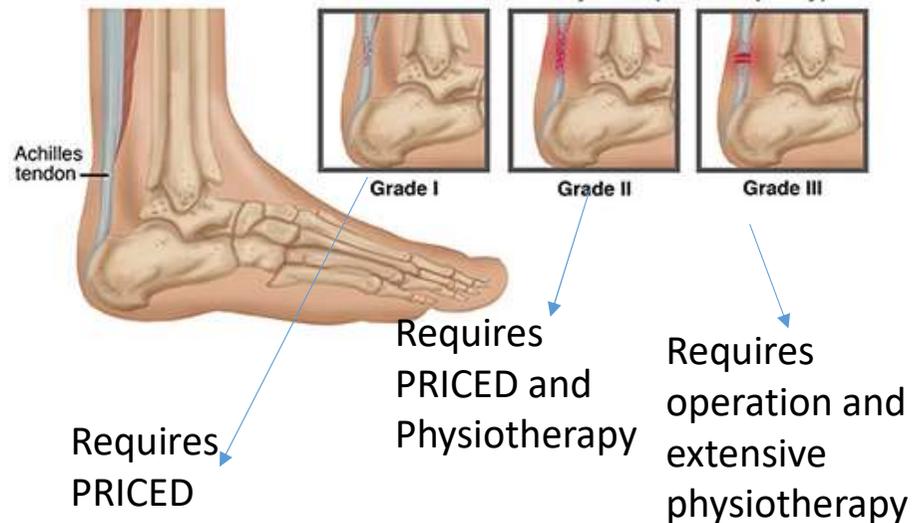
In an interview about his injury at the Nike Summit Kobe said.

When I first did it, right there, I was trying to feel if the tendon is there or if it's gone. I realized it wasn't there. I was literally trying to pull the tendon up, so hopefully I could walk and kind of hobble through the last two and a half minutes and try to play.

Signs:

- Pop
- Pain
- Swelling
- Tender
- No weight-bare

AN Achilles can tear in 3 different grades as shown below:



On Saturday 16th November 2013, 7 months after the injury, Kobe returned to the practice court. His first appearance on a court was 8th December 2013, 8 months later. He underwent an operation the day after his injury and spent 8 months in physiotherapy to be match fit and ready to play again.