

Establishing the Quantum - Medico-legal concepts

- Acceleration
- Advancement
- Exacerbation

Exacerbation of Symptoms

- Where a patient has a pre-existing problem that was giving them symptoms – the accident did not cause the underlying problem it just made it worse.
 - Someone had back pain at the time of an RTA
 - After the accident they had increased pain in their low back
 - RTA did not cause the low back pain but resulted in the symptoms becoming more pronounced

Exacerbation of Symptoms

- Where a patient had complained of symptoms in the area affected by the injury on numerous occasions in the past (and on balance of probabilities was likely to have problems with the same area in the future regardless of whether the accident had occurred)
 - Analysis of the medical records
 - patient had consulted on multiple occasions in the past
 - Within the previous year

Acceleration or Advancement of Symptoms

- “Symptoms were accelerated by the accident
- “Brought forward symptoms of arthritis that would have occurred anyway even if the accident had never occurred
- “Accident advanced the onset of the patient’s symptoms by 3-5 years”

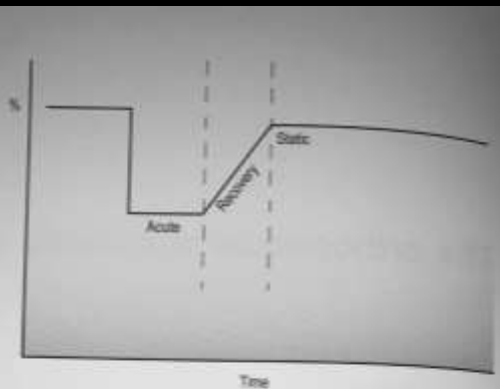


Fig. 1.1 • The normal triphasic response to injury

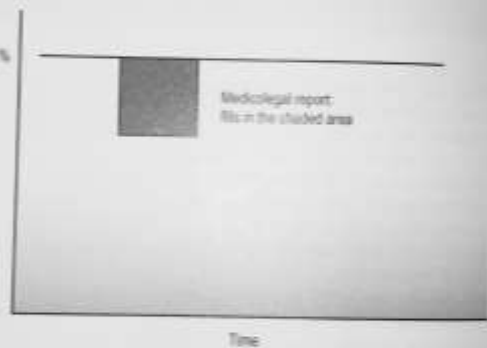


Fig. 1.2 • The simplest scenario: a full recovery

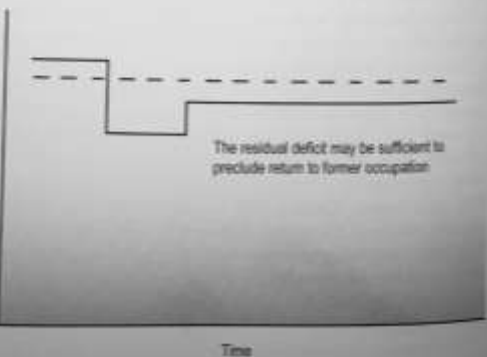


Fig. 1.3 • Full recovery not achieved in chronic state

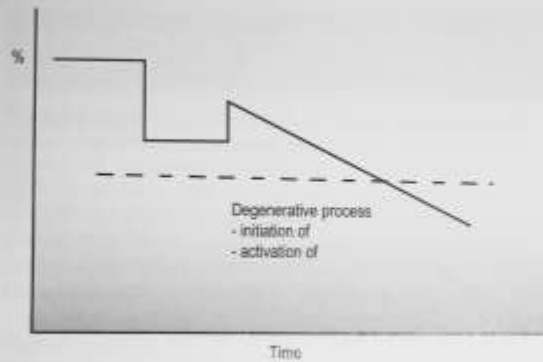


Fig. 1.4 • A degenerative process is activated by the subject's event

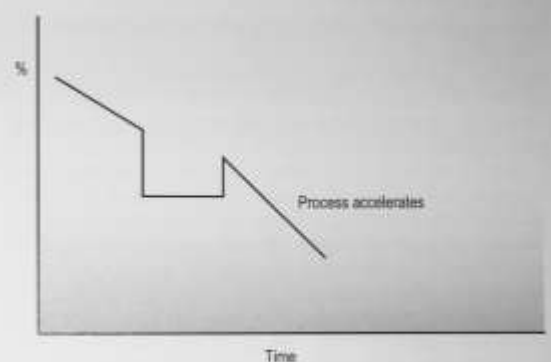


Fig. 1.5 • The subject event accelerates a degenerative process

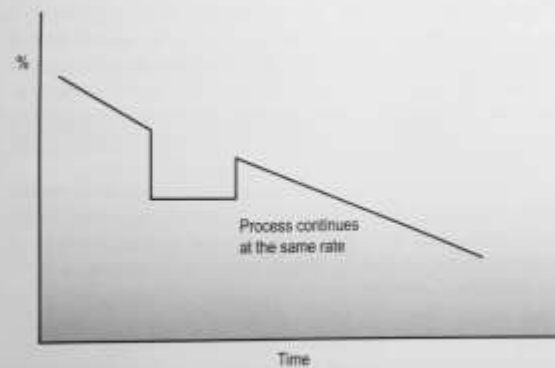


Fig. 1.6 • The subject event doesn't alter the degenerative process

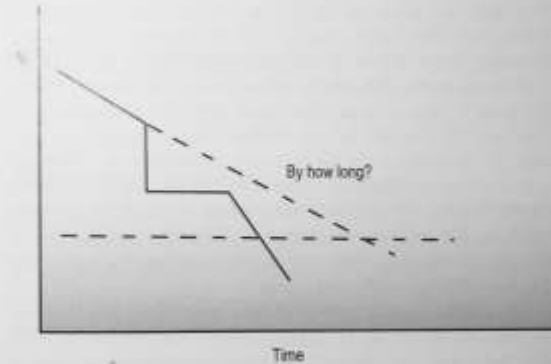
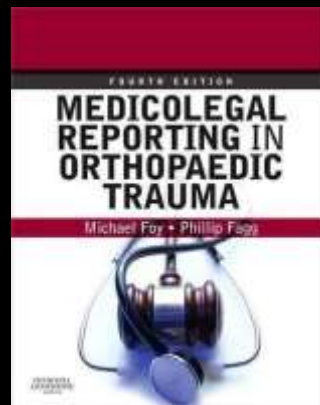


Fig. 1.7 • There is a period of "acceleration"



In simple words...

- Aggravation: Injury makes an underlying condition worse
- Acceleration: Deteriorates quicker than it would have but for the injury
- Advancement: Condition starts earlier than it would have but for the injury

Changes of opinion and Amendments

Changes of opinion

- Prognosis period exceeded
- Availability of further information
 - Pre-injury medical records
 - Post injury scans / x-rays / operation notes
- New / worsening symptoms

“When the facts
change, I change my
opinion. What do you
do, sir?”

Attr. John Maynard
Keynes



Where there is doubt...



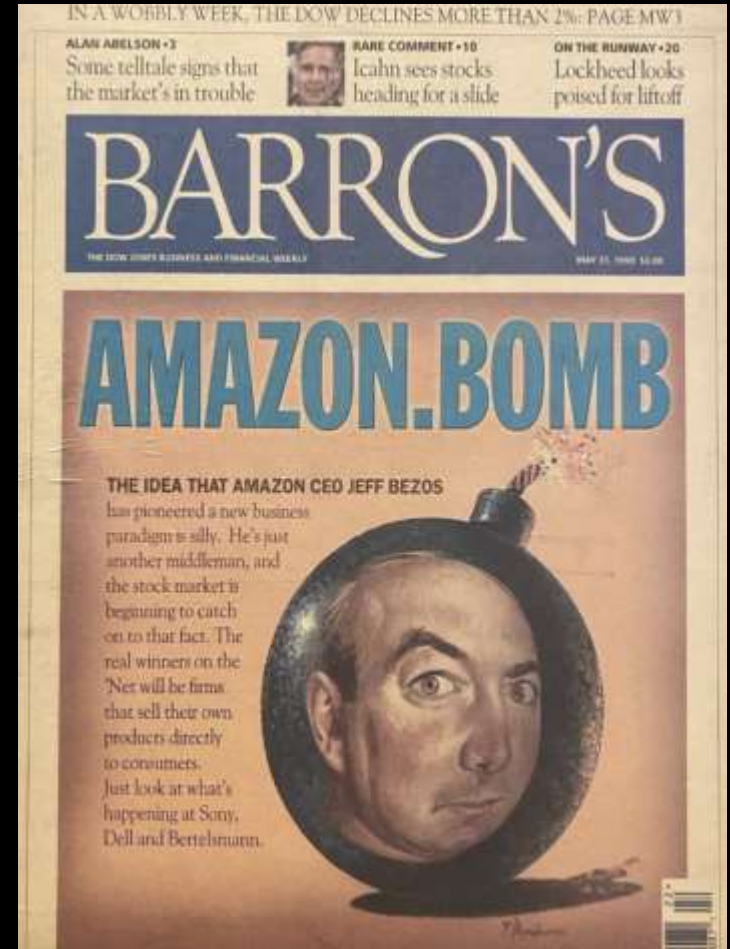
“The problem with the world is that the intelligent people are full of doubts, while the stupid ones are full of confidence.”

@thephilosoph // Charles Bukowski

Where events show you to be wrong...

“The idea that Jeff Bezos has pioneered a new business paradigm is silly...

...just look at what is happening at Sony, Dell and Bertelsmann”



Where events show you to be wrong...

“We don’t like your boys’ sound...”

...groups are out...

...four piece groups with guitars are particularly finished”



Where events show you to be wrong...

“The idea that

DECCA

Constable & Robinson

Robert K. Gallwey

Dear John J. Gallwey

Thank you very much for giving us the opportunity to consider your novel, which we have looked at with interest. However, I regret that we have reluctantly come to the conclusion that we could not publish it with commercial success.

In the event of "teaching my grandchildren to walk again", may I respectfully suggest the following:

1. Consider it as a helpful booklet, or a novella or in the twice yearly "Decca's Guide" of the Booklist magazine (order via newspapers, or available for your local bookseller).

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We could not publish it with commercial success...

IN A WOBBLY WEEK, THE DOW DECLINES MORE THAN 2%: PAGE MW1

that... Icahn sees stocks heading for a slide... Lockheed looks poised for liftoff

MARRON'S
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AT AMAZON CEO JEFF BEZOS



Cautions on changes of opinion

- Liverpool Victoria vs Khan and Zafar



**BOND
SOLON**
Wilmington Professional

Expert Witness Warning: Go directly to Jail - Do not Pass Go - Do not collect £350,000

NICK DEAL • APRIL 02 2019

In *Liverpool Victoria Insurance Co. Ltd v Zafar* (2019) EWCA Civ. 392, the Court of Appeal has set out guidelines to be followed by the courts when dealing with cases of contempt of court by expert witnesses.

In this case, Dr. Zafar was a GP who also had a medico-legal practice, producing about 5,000 reports per year, with a turnover of £350,000.

He examined the claimant in a road traffic case and produced a report, dated 17th February 2012, in which he stated that the claimant had fully recovered at the time of the examination, with symptoms having resolved within one week of the accident.

The claimant's solicitor then emailed Dr. Zafar, asking him to review his records as the claimant was stating that he had pain for over 2 months after the accident, some still continuing.

Dr. Zafar produced a second report, noting ongoing neck and shoulder pain at the time of his examination, and stating that symptoms should fully resolve between 6 to 8 months of the accident.

“Experts must be transparent in identifying all their sources of information and vigilant in ensuring that they never mislead the court by adopting suggestions made by anyone else

Cautions on changes of opinion

- Initial report: 1 week recovery
- Email from solicitor saying recovery took 6-8 months
- 2 different expert reports, same date



Expert Witness Warning: Go directly to Jail - Do not Pass Go - Do not collect £350,000

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Cautions on changes of opinion

- Zafar:
 - “reckless”
 - Contempt of Court
 - 6 month suspended sentence
- Khan:
 - Jailed 1 yr
 - Dishonestly inflated claim to recover higher costs

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**Expert Witness Warning:
Go directly to Jail - Do not Pass Go
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Changes in the literature evidence



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Sage Journals

Article

Association of Preexisting Triple Fusion and Arthroscopic Ankle Arthrodesis nonunion

Alex Woods, MA, BMBCh, DPhil, FRCS ¹, Adrian Kendal, MA, BMBCh, DPhil, FRCS ¹, Shwan Henari, MCh, MB/BCh/BAO, FRCS², Mark Rogers, MD, FRCS¹, Rick Brown, MBBS, MA, FRCS¹, Robert Sharp, BMBCh, MA, FRCS¹, and Constantinos L. Loizou, BSc, MBBChir, PhD, FRCS¹

Background: Arthroscopic ankle arthrodesis (AAA) is a successful treatment for end-stage ankle arthritis. A significant early complication of AAA is symptomatic nonunion. Published nonunion rates range from 8% to 13%. Longer term, there is concern that it predisposes to subtalar joint (STJ) fusion. To better understand these risks, we undertook a retrospective investigation of primary AAA.

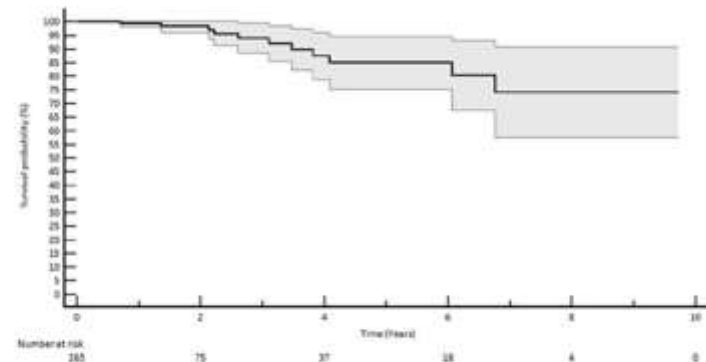


Figure 2. Survival of subtalar joint post arthroscopic ankle arthrodesis.

The role of AI



Misattr to Mark Twain

The role of AI



HOLD ON
LET ME
ASK
CHAT GPT



Robert Clayton

is there evidence for cerebral muscle death within six hours of onset of compartment syndrome



ChatGPT

Yes, there is evidence that muscle death can begin within six hours of the onset of compartment syndrome. Compartment syndrome occurs when there is increased pressure within a closed muscle compartment, which can compress blood flow and lead to tissue ischemia.

If the increased pressure is not relieved promptly, muscle cells can start to die due to lack of oxygen and nutrients. Studies indicate that irreversible muscle damage can begin around the 4 to 6-hour mark after the onset of ischemia. Therefore, timely diagnosis and intervention are crucial to prevent permanent muscle damage and functional loss.

It is important to seek medical attention immediately if compartment syndrome is suspected.



Robert Clayton

is there evidence for compartment syndrome



ChatGPT



Robert Clayton

What are the relevant papers in the medical research literature



ChatGPT



Here are some relevant papers in the medical research literature that discuss compartment syndrome and its effects, including the timeline for muscle damage:

- 1 "Compartment Syndrome" - Hsu, R. W. & McMillan, S. C. (1995). This paper provides an overview of compartment syndrome, including pathophysiology and management strategies.
- 2 "Acute Compartment Syndrome: A Review of the Literature" - McQueen, M. M., & Allen, S. A. (2008). This review discusses the timeline and consequences of acute compartment syndrome, emphasizing the importance of early intervention.
- 3 "Timing of Fasciotomy in Acute Compartment Syndrome: A Review of the Literature" - Hsu, R. W., & O'Connor, J. J. (2015). This article reviews the consequences of delayed fasciotomy and highlights the critical time window for intervention to prevent muscle necrosis.
- 4 "Muscle Injury and Repair: Mechanisms and Interventions" - Grewal, H., & Degrassat, E. J. (2017). Although it focuses broadly on muscle injury, it contains relevant sections on ischemia and the timeline for muscle death in conditions such as compartment syndrome.



Robert Clayton

is there evidence for c... of muscle death with... of compartment syndrome



ChatGPT



Robert Clayton

What are the relevant papers in the medical research literature



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Robert Clayton

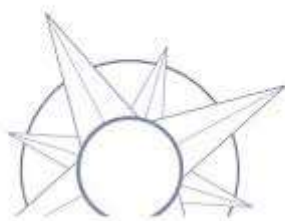
can you give me the full reference for the weigelt paper no 6



ChatGPT

I apologize for the error, but I must clarify that the reference I provided for the Weigelt paper was illustrative and may not correspond to an actual published paper.

For accurate and reliable information, I recommend searching databases like PubMed, Google Scholar, or relevant medical journals for articles related to... and... If you need assistance finding specific studies, I'd be happy to help you with search strategies or keywords!



Compass Chambers

Counsel discussions

- Much more frequent
- Much easier



When it goes to court



When it goes to court



Before Court – in Advance

- Citations and timings
- Preparation:
 - Do I need to see the pursuer again?
 - Do I need to speak to solicitor / counsel?
 - Do I have the pleadings / other side's report?
 - Do I have the medical records and imaging?
 - Does the Court require any imaging?
 - Any props?



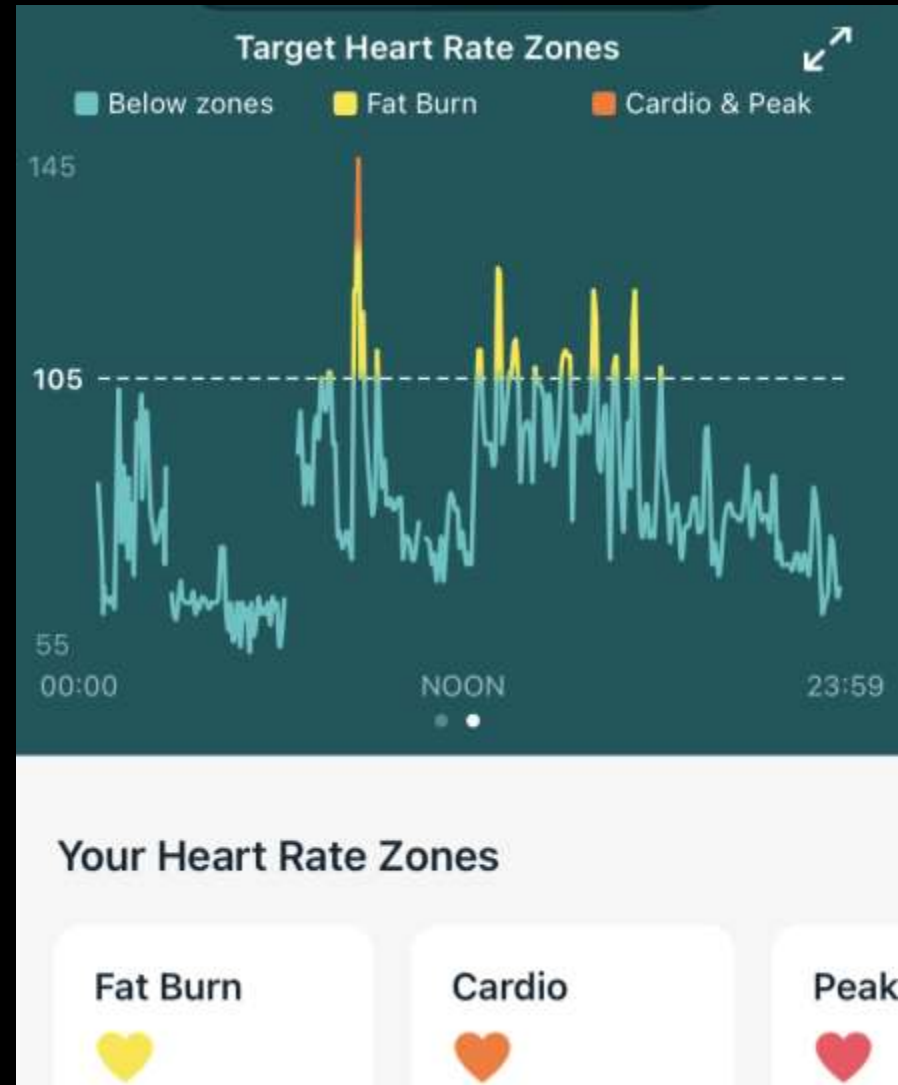
Before Court – the day(s) before

- Re-read everything
- Many times

- When to do this work?



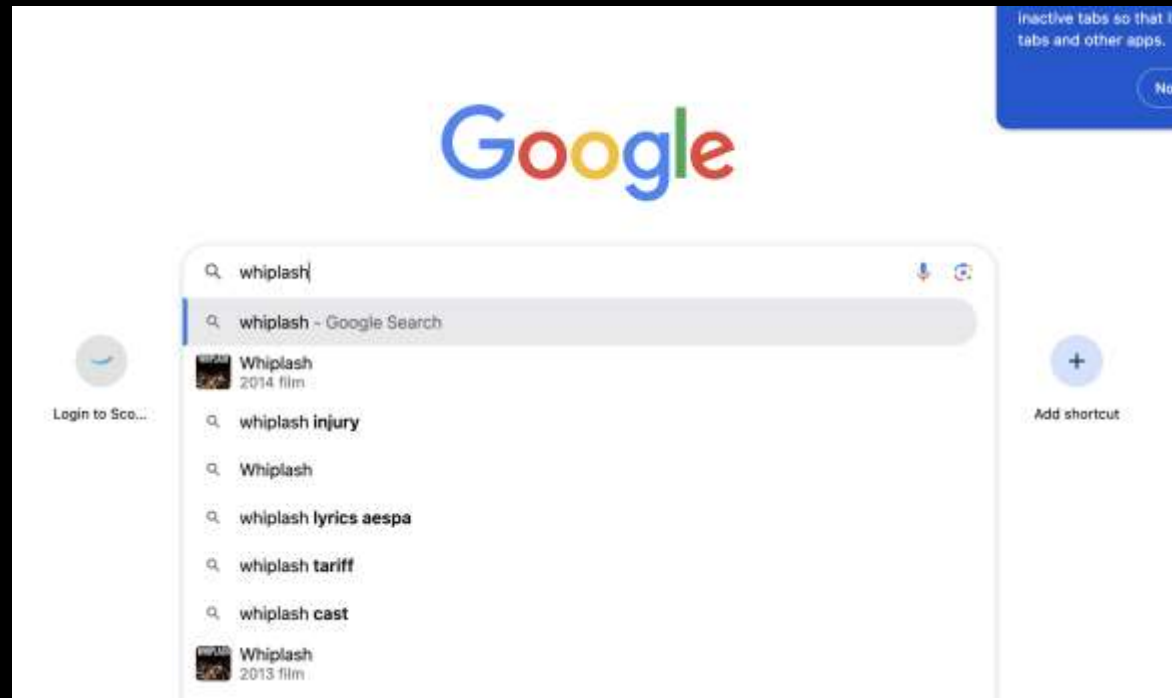
It's a proper mental workout!



Common Scenarios

Low Velocity Injury

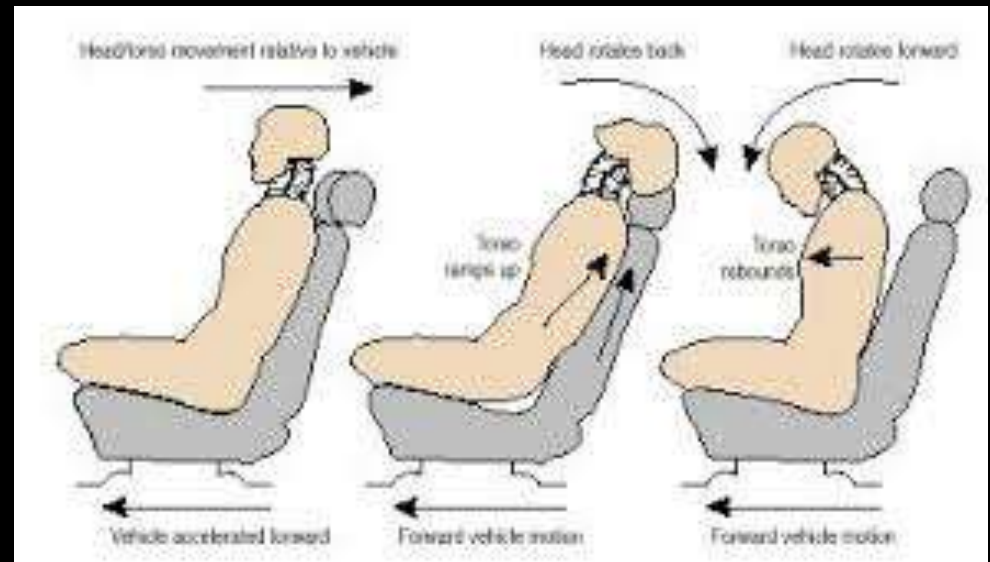
- AKA:
 - Whiplash
 - Whiplash Associated Disorder
 - Muscle / tendon soft tissue strain of the neck



- First described after railway accidents in 1882

How does it happen?

- Most commonly rear impact
- Various directions of impact
- Speed of impact



What is injured

- Mostly muscle / tendon / ligament



Potential injuries to:

- Bones (Fractures)
- Nerves
- Blood vessels
- Intervertebral discs
- Spinal cord

These often carry a longer prognosis

Quebec Taskforce

Grade	Description
0	Whiplash injury but no pain, symptoms or signs.
1	Delayed neck pain, minor stiffness, non-focal tenderness only, no physical signs.
2	Early onset of neck pain, focal neck tenderness, spasm, stiffness, radiating symptoms.
3	Early onset of neck pain, focal neck tenderness, spasm, stiffness, radiating symptoms and signs of neurological deficit.
4	Neck complaint (grade 2 or 3 above) and fracture dislocation.

How the injury arises

- Change in velocity (delta V)
 - Human injury – above 3-5 mph
 - Vehicle damage above 8 mph
- Degree of vehicle damage may not correlate with injury
- Minimum speed to cause injury?
- Crash lab tests may not mimic real life



What the pursuer will experience

- Neck pain
- Shoulder pain
- Back pain
- Numbness
- Headaches

- Temporary dizziness, ringing in the ears, visual disturbance, sensory disturbance
- (Psychological factors)

What the examining doctor can look for

- Clinical history
 - Nature and location of pain
 - Time of onset
 - Medical attention
- Tenderness
- Restriction of movement

- Scans / x-rays usually normal

Treatment

- Normal mobilisation
- Physiotherapy
- Painkillers

The Role of Physiotherapy

- Clients who might benefit:
 - Loss of movement
 - Less motivated
 - Muscle wasting
- Specific number of sessions required impossible to quantify and opinions will vary

Controversies in Causation

- Exaggerated or fraudulent claims
- Variation between countries
- Duration of symptoms
- Physical cause for onset, psychological / social causes for prolonged duration?

- Damage to vehicle – can require higher speed than injury to human
- Speed at impact
- Range of opinion in the medical profession

Is this going to hurt?



Prognosis

- NB Difference in meaning between doctors and lawyers
- Highly variable time to recovery – usually an estimate
- Constitutional neck pain in 35%
- Pre-existing conditions
- Occupational factors
- Psychosocial factors

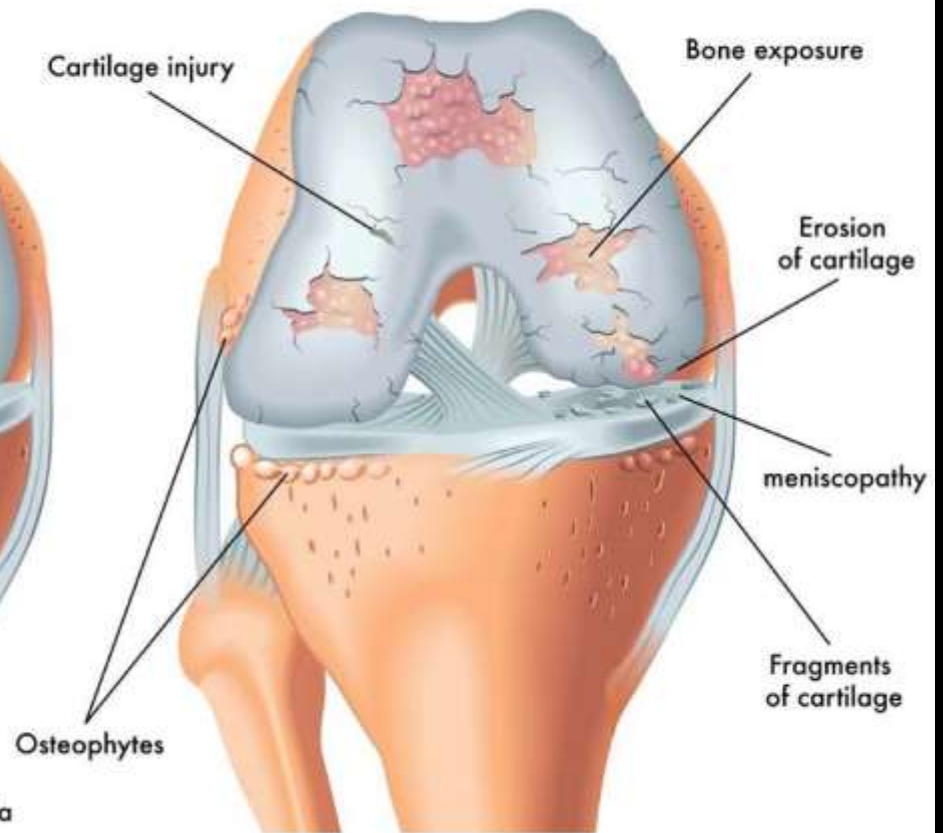
Degenerative Change

- AKA:
 - “Wear and Tear”
 - In a joint: “Arthritis”, “Osteoarthritis”, “Arthrosis”

Normal knee



Arthrosis of the knee







Degenerative Change

- Does it pre-date the index accident?
- Has the index event accelerated it
 - i.e. made the speed of decline faster
- Or has it advanced it (unmasking)?
 - i.e. brought forward the time when pain starts
- Has the index event caused the degenerative change?

Determining the Timeframe of Advancement?

- A difficult concept with no firm basis in clinical practice.
- “Educated guess” based on severity of injury compared with severity of underlying problem.
- Many patients with arthritis on an x-ray have no symptoms.
- Given sufficient time virtually all arthritis will become symptomatic at some point

Fractures



Fractures

- Prognosis highly variable
- Really important to see x-rays
- NHS National PACS archive?



Soft tissue injury



Soft Tissue Injury

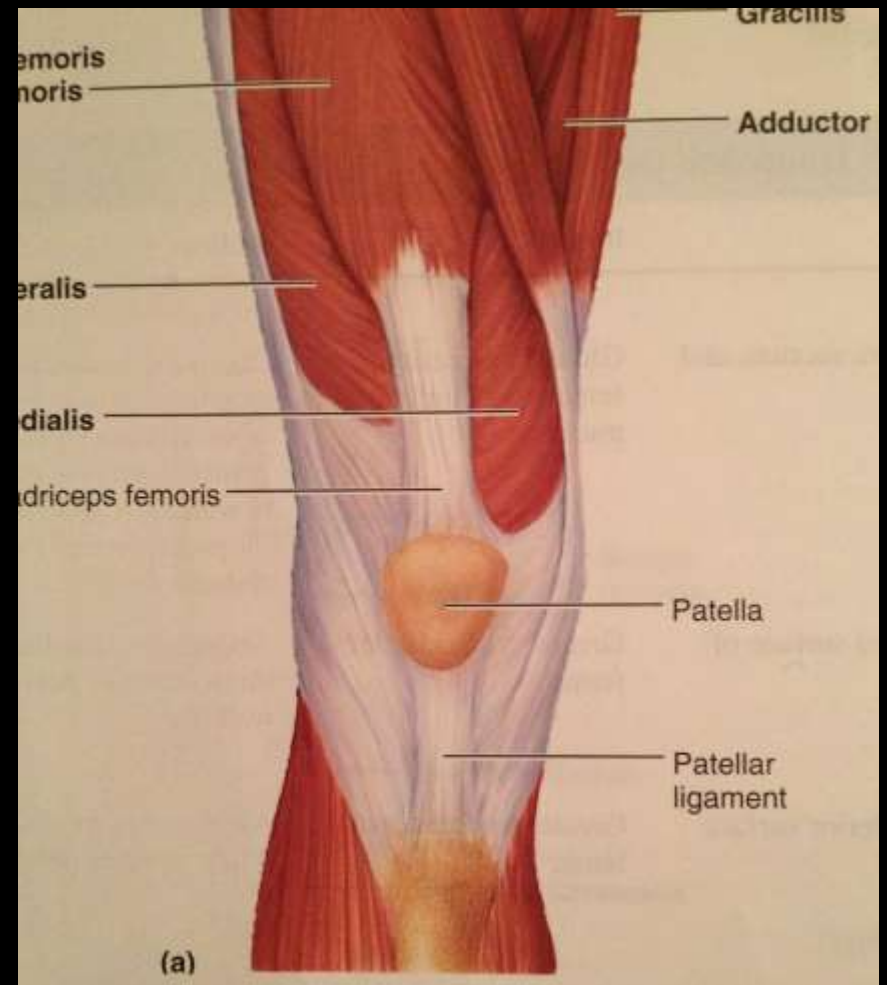
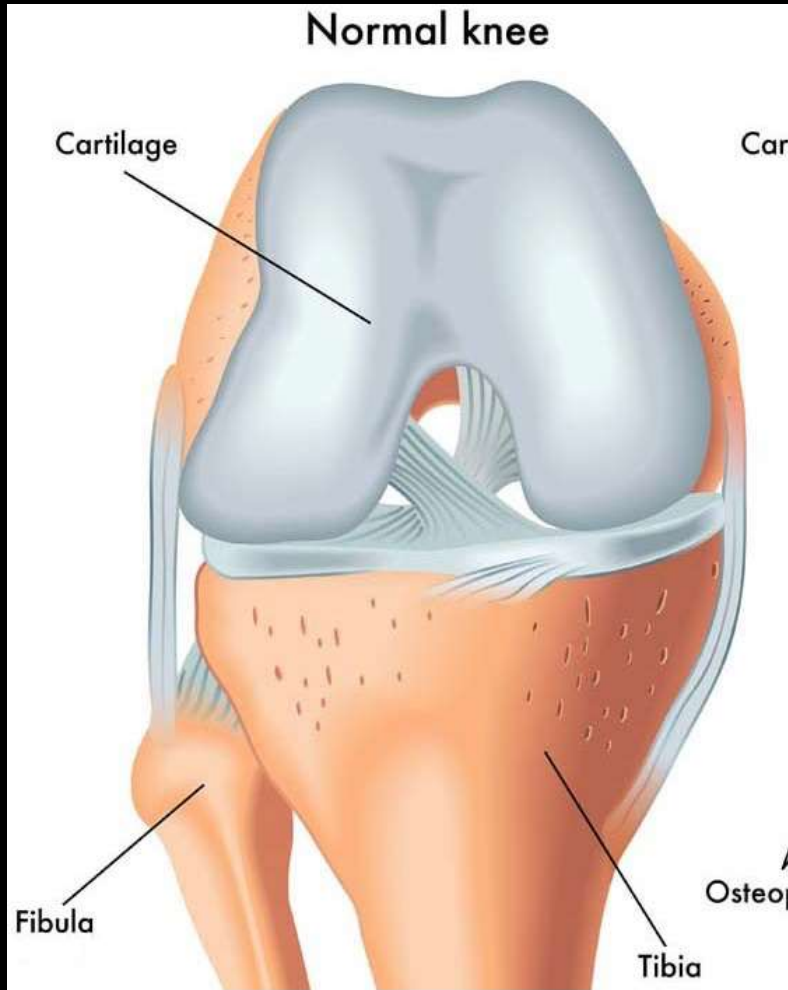
- Huge range!
- Term often used - or mis-used - by doctors when there is no fracture
- Soft tissue injuries have a very wide range in severity and can frequently be worse than fractures



Sports ankle injury



Soft Tissues in the Knee



Soft tissue injuries

- Most minor sprains can be expected to recover in weeks or months
 - Precise diagnosis might not matter
- Longer lasting symptoms will require a precise diagnosis
 - Might require medical imaging
- Caveat in report prognosis if seen early

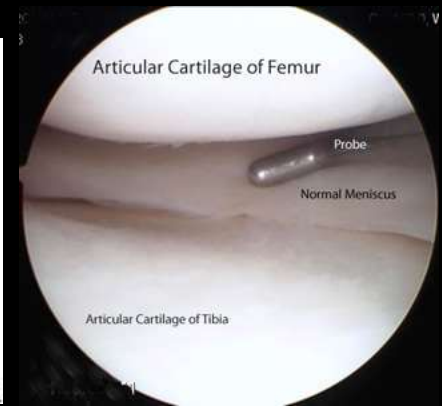
Arthroscopy

- Keyhole surgery on a joint
- Most commonly knee
- Also Ankle, Shoulder, Hip, wrist



Purposes of arthroscopy

- Trim damaged meniscus (meniscectomy)
- Ligament repair
- Cartilage repair
- Remove spurs of bone
- Joint fusion



Back Pain



Back pain

- By age 20 50% people have experienced
- By age 60 80% people have experienced
- Usually self limiting resolves over period of 6 -12 weeks.

Why do we get back pain?

Individual Factors

- Previous history of back pain. Relative risk 2.71
- Age
- Not correlated with imaging ie MRI or X-Rays

Genetic factors

- Twin studies have shown that genetic factors are responsible for
 - 30-50% of back pain.
- There are genes that have been shown to predispose
 -
- Genetic testing in the future

Environmental factors

- Lots of studies difficult to interpret
- Smoking clear risk factor
- U shape distribution
- Evidence that repetitive heavy work can predispose
- Lack of activity may be a risk factor

Psychosocial

- Association with Depression
- Low job satisfaction
- Work related psychosocial factors – persistence of symptoms
- If they think caused by work then find difficult to return to work.

Psychosocial Factors

- Boeing study- 3000 workers, 250 absent >1 day back pain
- NOT risk factor: Workload, Muscle strength, fitness, mobility, sex and age
- RISK factors: Previous History back pain, Smoking and psychosocial factors
- Do you like your job, fellow workers, boss: No significant risk factor

Financial Motives

- Canadian study
- 5000 uninsured Vs 6000 Insured patients
- Question: How did your back pain occur?
- Answer: Uninsured 33% work related
- Insured 90% work related

Disc Prolapse

- Leg or arm pain worse than neck / back pain.
- Radiculopathy – Sciatica / Brachalgia
- Symptoms in history consistent with nerve compressed eg location
- Signs on Examination consistent with nerve compressed



Disc prolapse causation

- Similar risk factors to back pain but separate entity
- ie can have disc prolapse with little back pain
- Caused by dehydration of disc with normal ageing process
- May be partly caused by an incident if pain occurs fairly soon after event.

?