

FRACTURE MANAGEMENT WORKSHOP

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GP CME Meeting
Dunedin 15 August 2013

- ▣ Introduction
- ▣ Fracture healing
- ▣ Diagnosis
- ▣ Fracture management in primary care
- ▣ Complications
- ▣ Plastering techniques

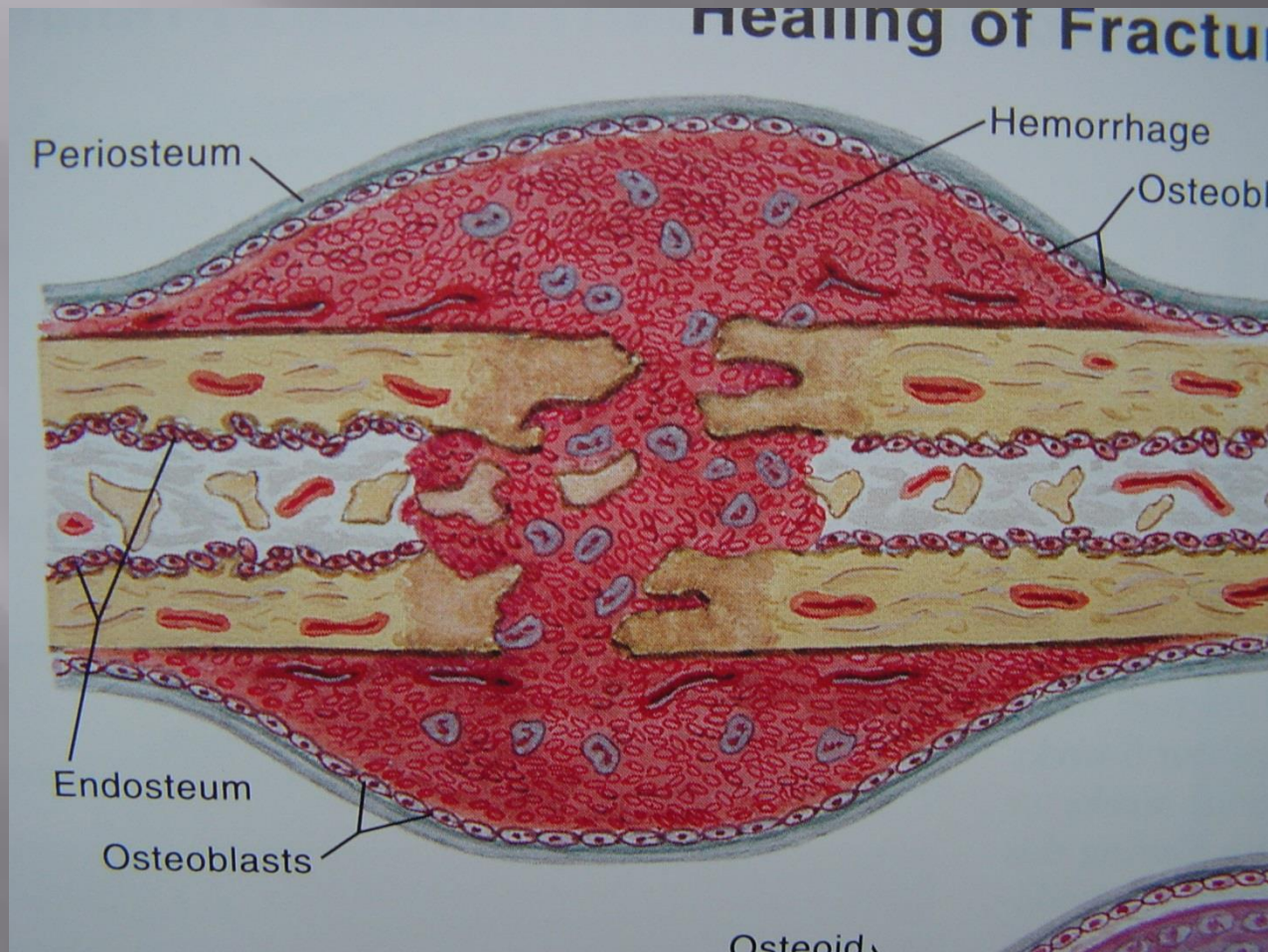
Introduction

- ▣ 80% of primary care providers are involved in fracture management
- ▣ Most common cause of adverse outcome relates to
 - Missed fracture
 - Delay in treatment/referral
 - Underestimating seriousness of injury

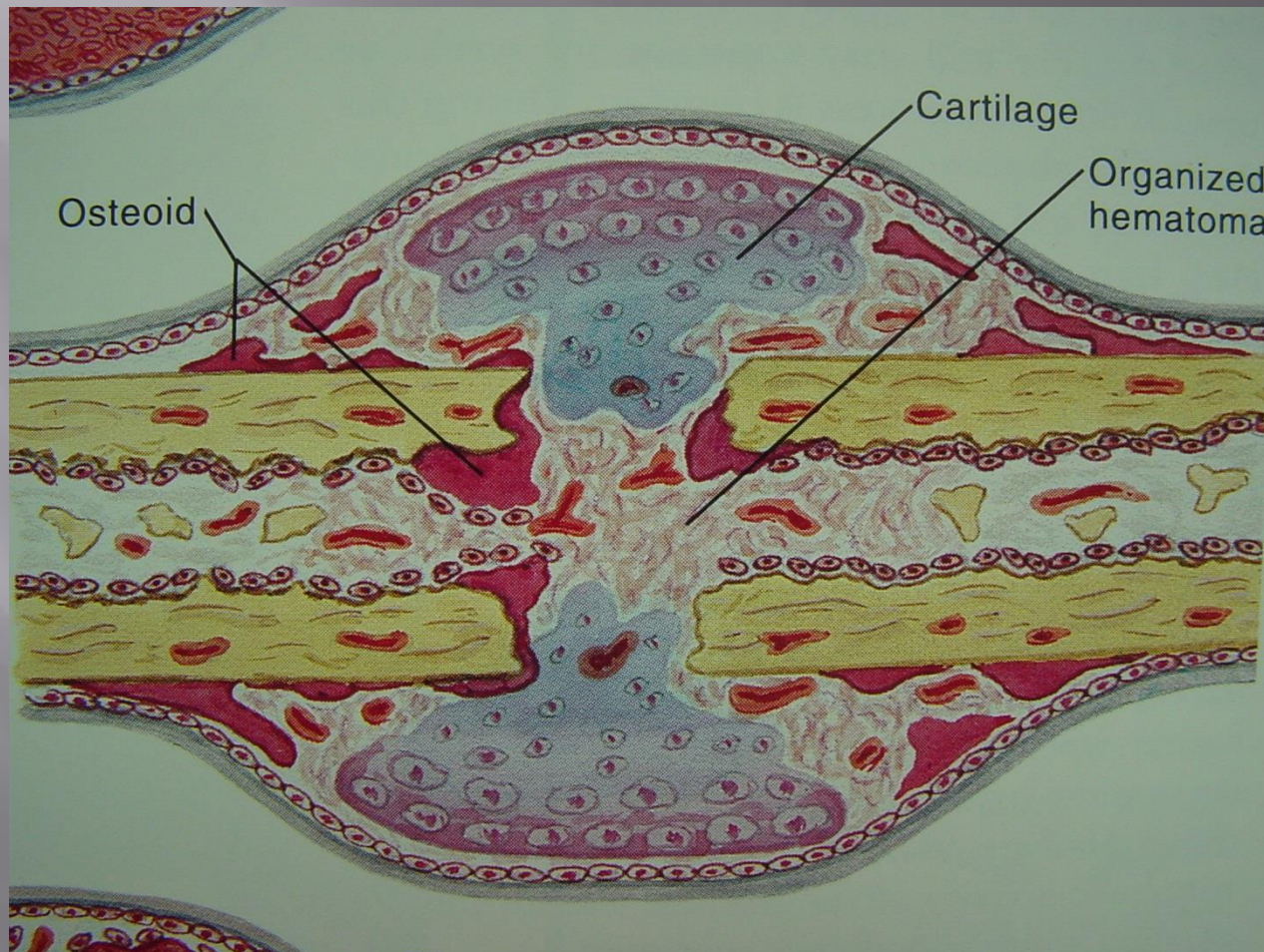
Fracture Healing

- ▣ 4 Stages
 - Inflammation
 - Soft callus
 - Hard callus
 - Remodelling

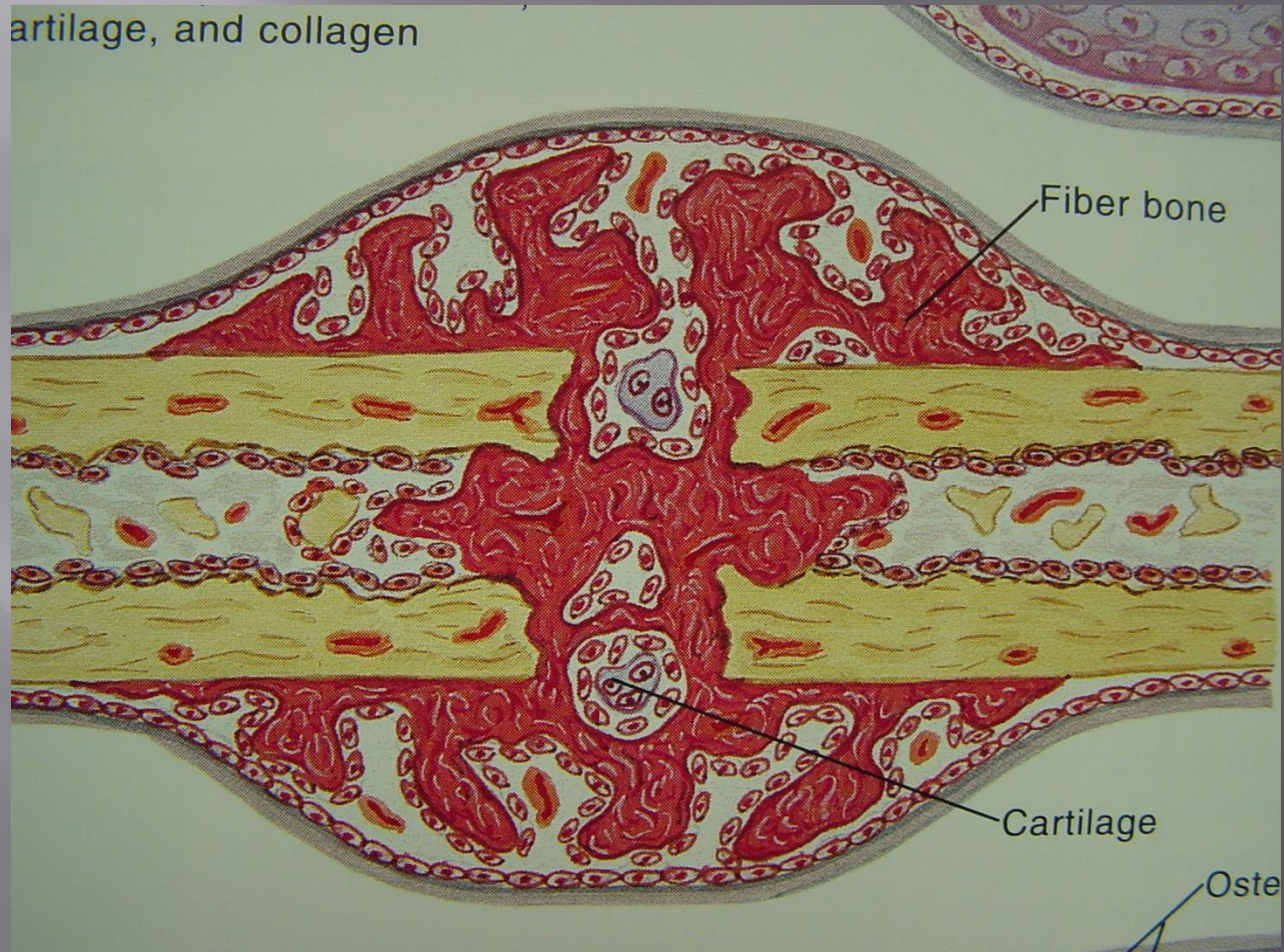
Inflammation



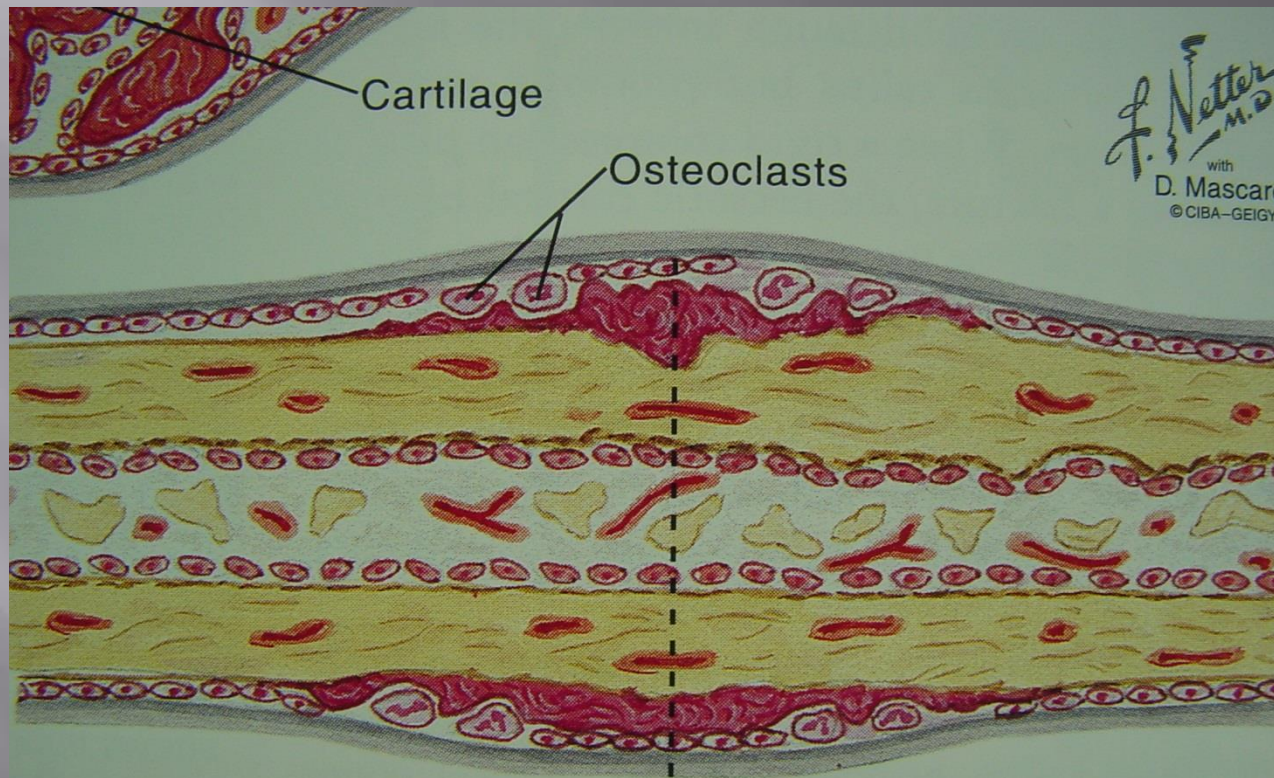
Soft callus



Hard callus



Remodelling



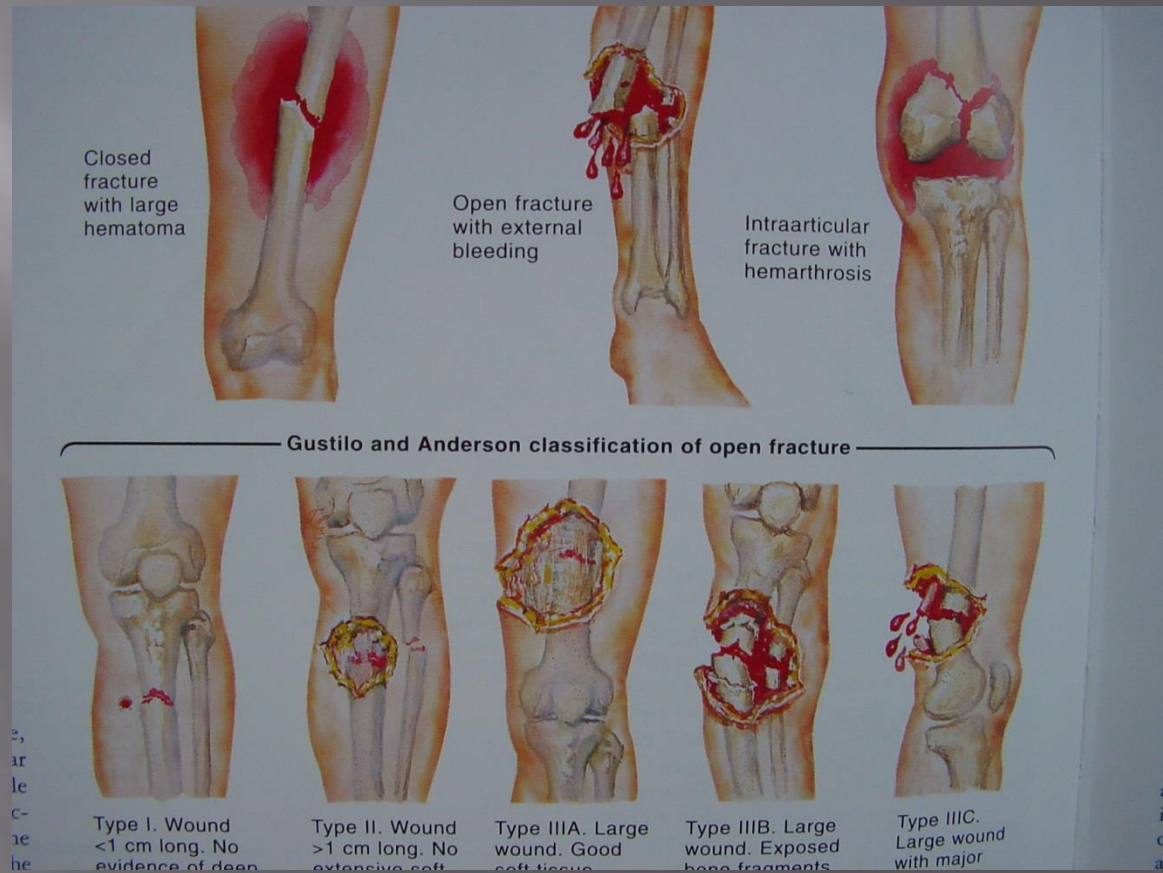
the fracture
mulus for the

Formation of Hard Callus. The transition from
soft callus to hard callus occurs 3 to 4 weeks into



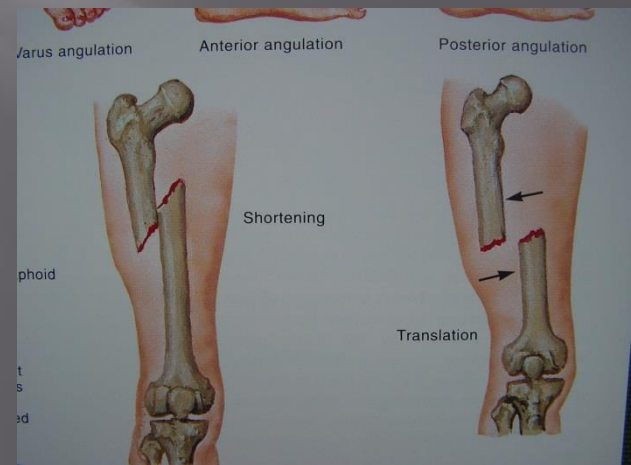
Fracture classification

- ▣ Closed
- ▣ Open
- ▣ Intraarticular



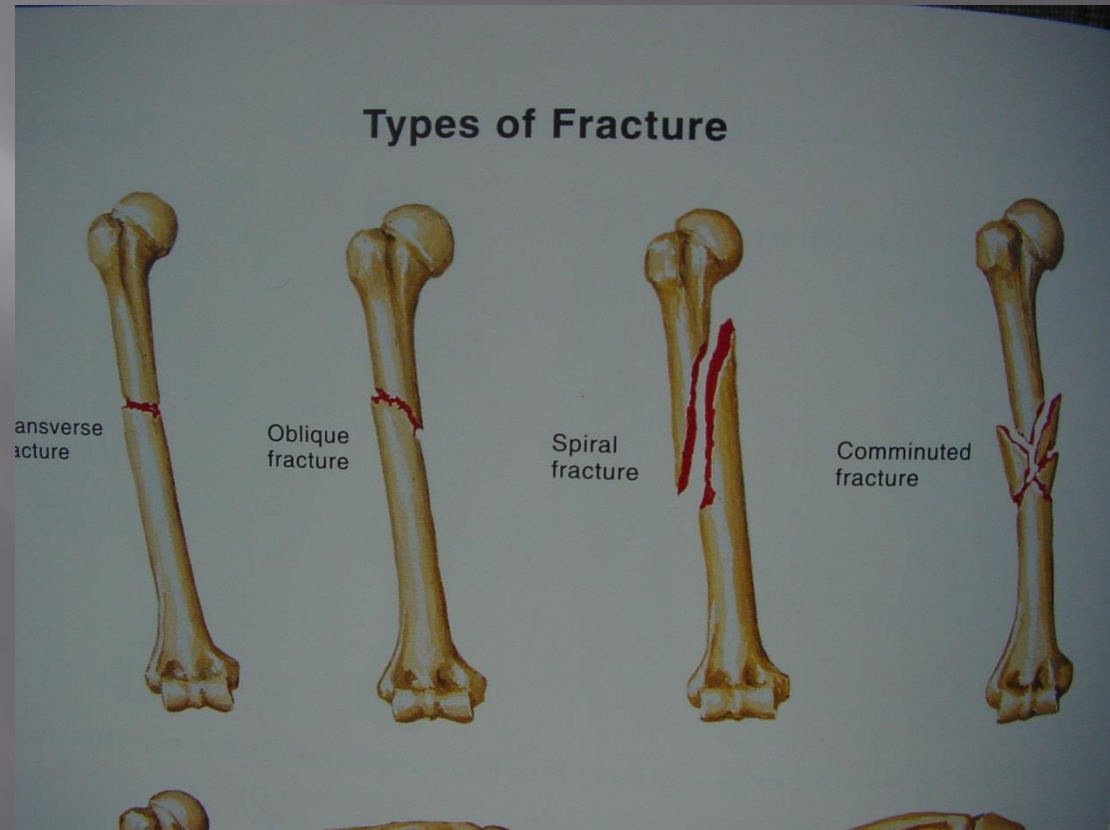
Fracture displacement

- ▣ Angulation
- ▣ Translation
- ▣ Shortening
- ▣ Rotation

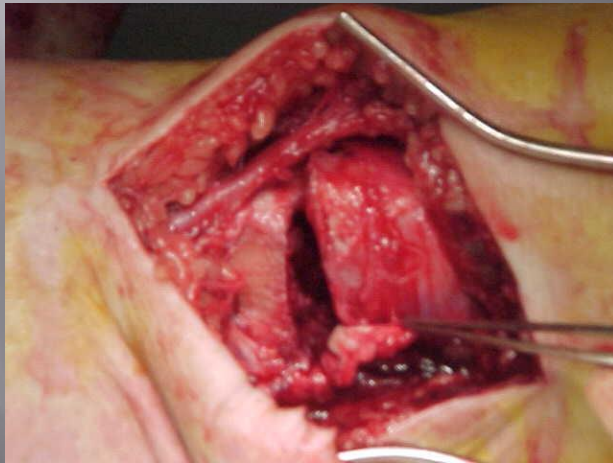


Fracture types

- ▣ Transverse
- ▣ Oblique
- ▣ Spiral
- ▣ Comminuted



Examples



Fracture complications

- ▣ Fracture related
 - Non union
 - Malunion
 - Avascular necrosis
 - Infection
- ▣ Other
 - Joint stiffness
 - Post traumatic OA
- ▣ Soft tissues
 - Skin
 - Vascular
 - Nerves
 - Spinal cord
 - Tendons/muscles

Causes of non union

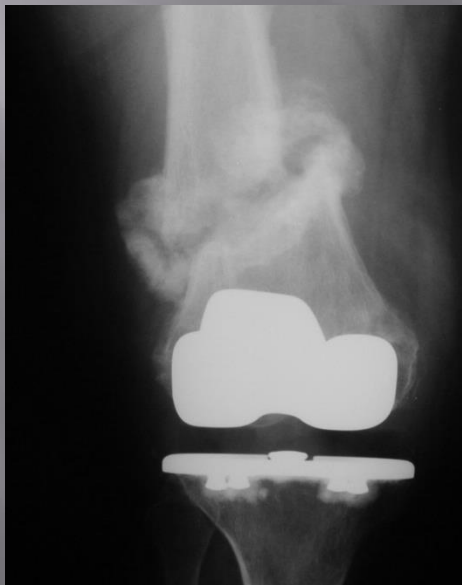
- ▣ Excessive movement
- ▣ Poor blood supply
- ▣ Infection
- ▣ Distraction
- ▣ Interposition soft tissues
- ▣ Pathological bone

16 56 yrs

INSTAN

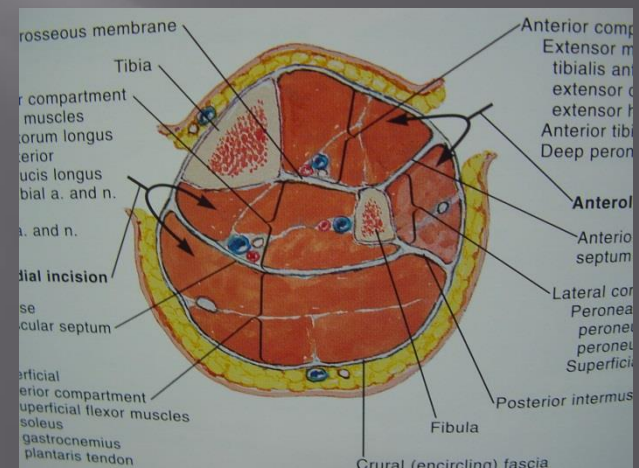
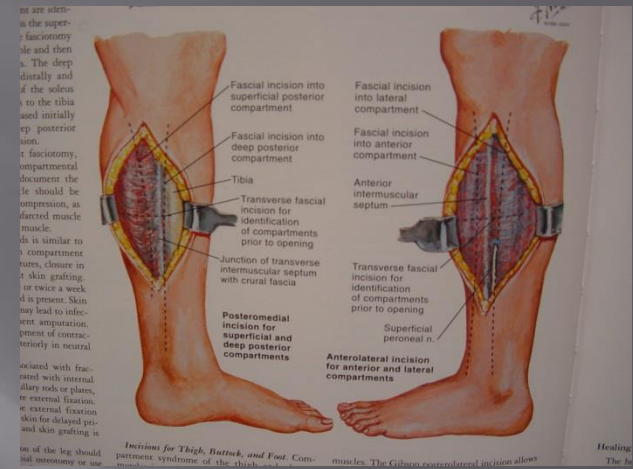


Examples of complications



Compartment syndrome

- ▣ Fracture haematoma
- ▣ Increased pressure
- ▣ Oedema
- ▣ Muscle ischaemia and necrosis
 - 6 'P's'
 - ▣ Pain
 - ▣ Paraesthesiae
 - ▣ Pallor
 - ▣ Puffiness
 - ▣ Paralysis
 - ▣ Pulselessness



Fracture evaluation

- ▣ Clinical
 - Soft tissues
 - Circulation
 - Nerve function
 - Compartment syndrome
- ▣ Imaging
 - Xrays
 - CT
 - MRI

DISPLACED OR NOT?
STABLE OR UNSTABLE?

Fracture management

- ▣ Reduce if displaced
- ▣ Hold in place until healed
- ▣ Rehabilitate

Fracture reduction

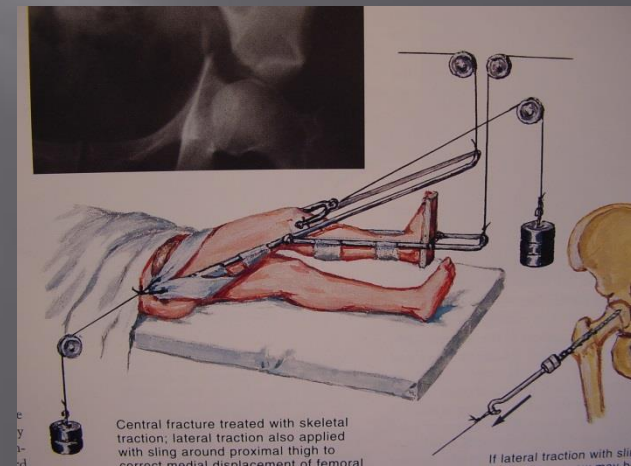
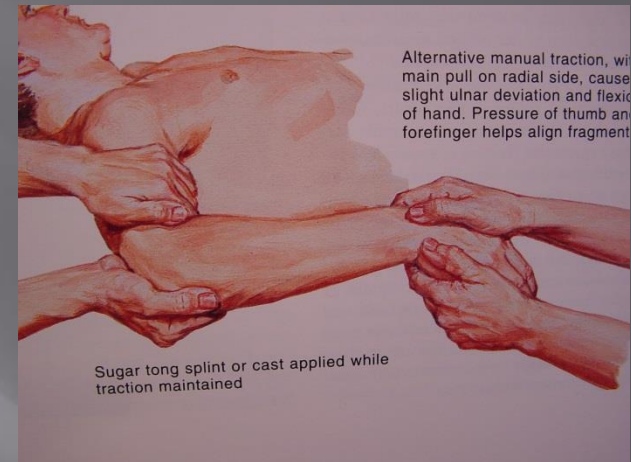
- ▣ Closed
 - Fracture manipulation
 - Traction
- ▣ Open
 - Surgery

GENERAL, REGIONAL OR LOCAL ANAESTHESIA

Hold fracture

- ▣ External
 - Splint
 - Plaster
 - External fixator
 - Traction (skeletal,skin)
- ▣ Internal
 - Pin, screw,wire
 - Plate
 - Nail

Examples



External fixator





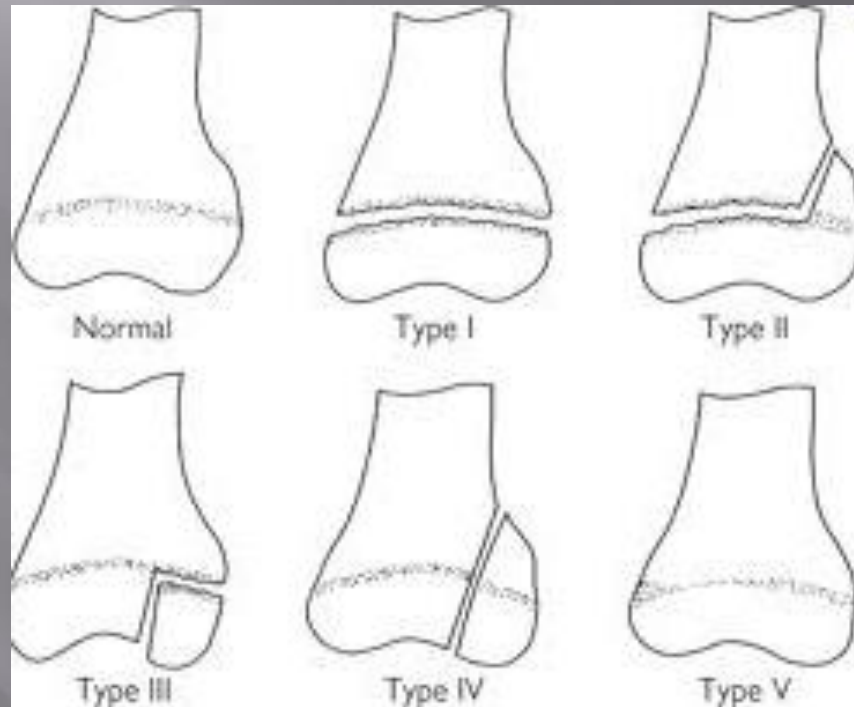
Types of healing

- ▣ Union
 - Clinical union permits resumption of limb function (occurs earlier than radiographic union)
- ▣ Delayed healing
 - Healing takes longer than usual
- ▣ Malunion
 - Healing of fracture with residual deformity
- ▣ Non union
 - Failure of fracture to unite (pseudarthrosis)

Paediatric fractures

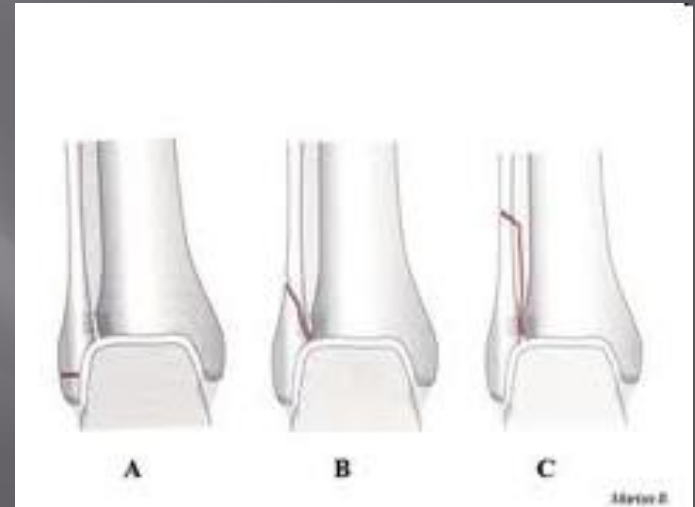
- ▣ Growth plate is the weakest link
- ▣ Fracture more common than sprain
- ▣ Physis subject to shearing/rotational forces
- ▣ Growth disturbance may occur
- ▣ Potential for remodelling

Salter Harris classification



Weber ankle fracture classification

- ▣ Type A # below ankle mortise
- ▣ Type B # at the level of mortise with tibio fibular ligaments usually intact
- ▣ Type C # above mortise with rupture of tibio fibular ligaments and lateral talar shift



Weber A and B management

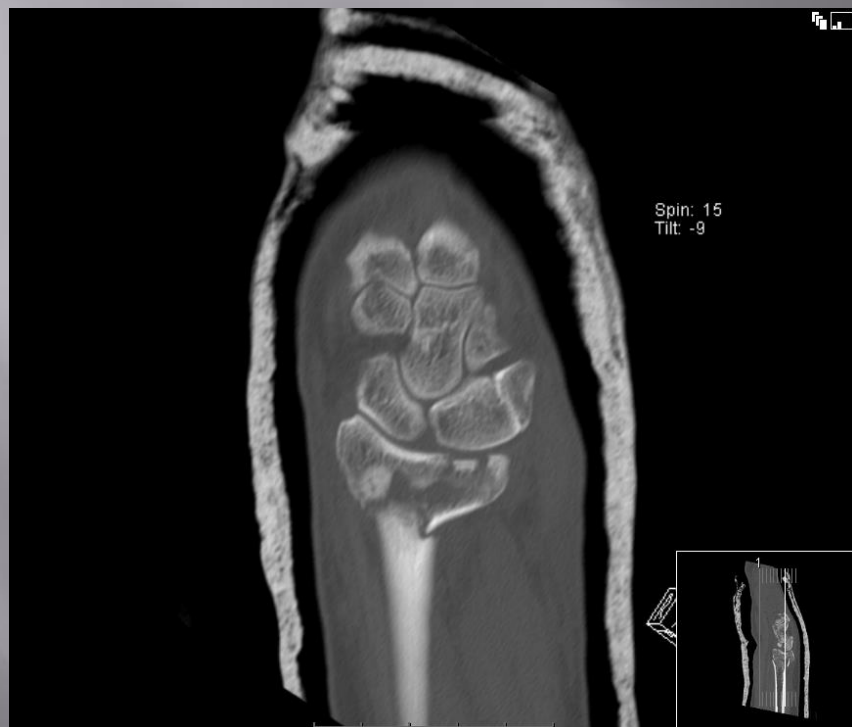
- ▣ Undisplaced or minimal displacement without talar shift
 - Plaster immobilisation 6 weeks non weightbearing
 - Xrays in plaster must show symmetric joint space on mortise view
 - Check Xray at 1 week
 - Ankle physiotherapy after removal of plaster
 - Recovery 3 months

Weber C fracture

- ▣ Surgery
 - Internal fixation plate fibula
 - Syndesmosis screw
 - Plaster 6 weeks

- ▣ Making a diagnosis
 - Clinical examination
 - Xray interpretation
- ▣ Displacement?
 - Undisplaced
 - What is acceptable
 - Does the # require reduction
- ▣ Immobilisation
 - Splint/plaster
 - What position
 - How extensive
 - How long
- ▣ Is the fracture healed?
- ▣ Does the patient require physio
- ▣ Possible complications









































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5/01/1995

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TSY4624
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Grey Hospital

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Grey Hospital

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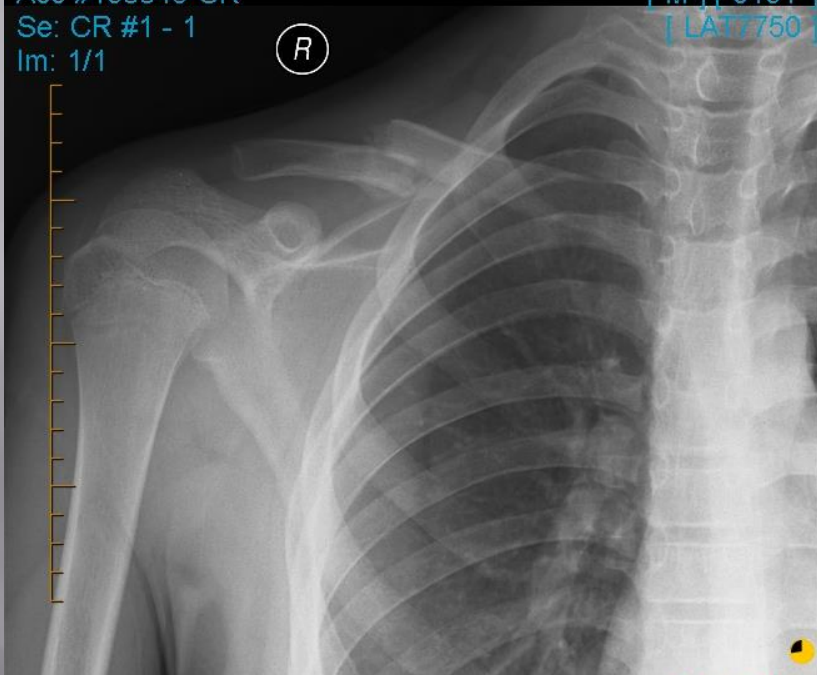
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 Compression: 25:1
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GREY-RIGHT SHOULDER Grey Hospital
 AP [RASMUSSEN^KELLY^ROBERT]
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