

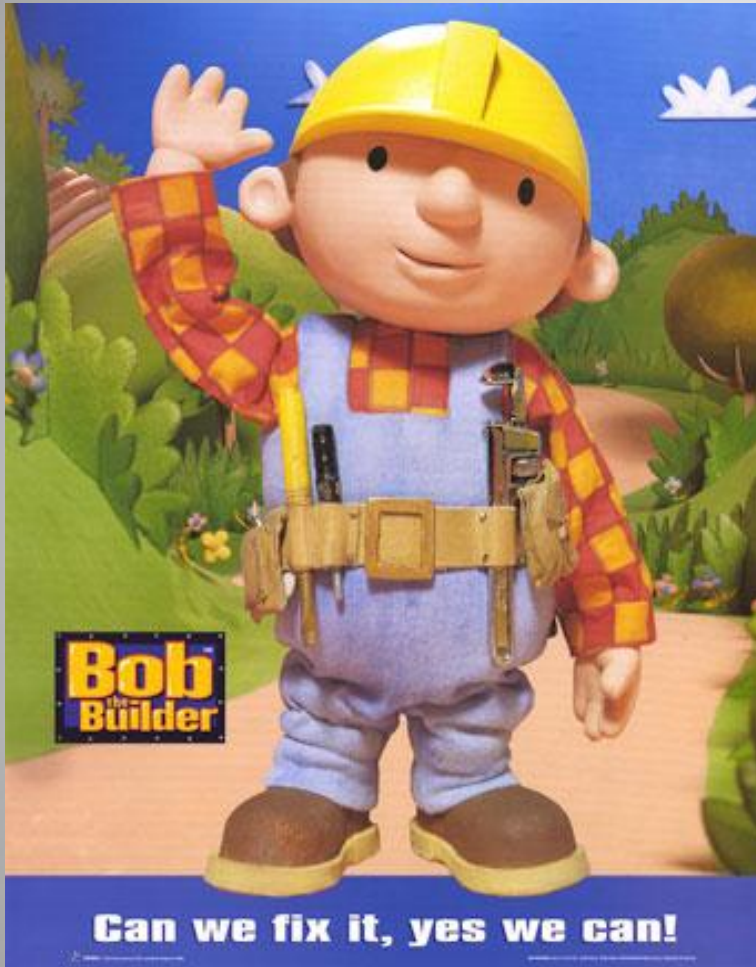
Non Operative Management of Common Fractures

Mr Duy Thai

Orthopaedic Surgeon

MBBS, FRACS (Ortho), Dip Surg Anat





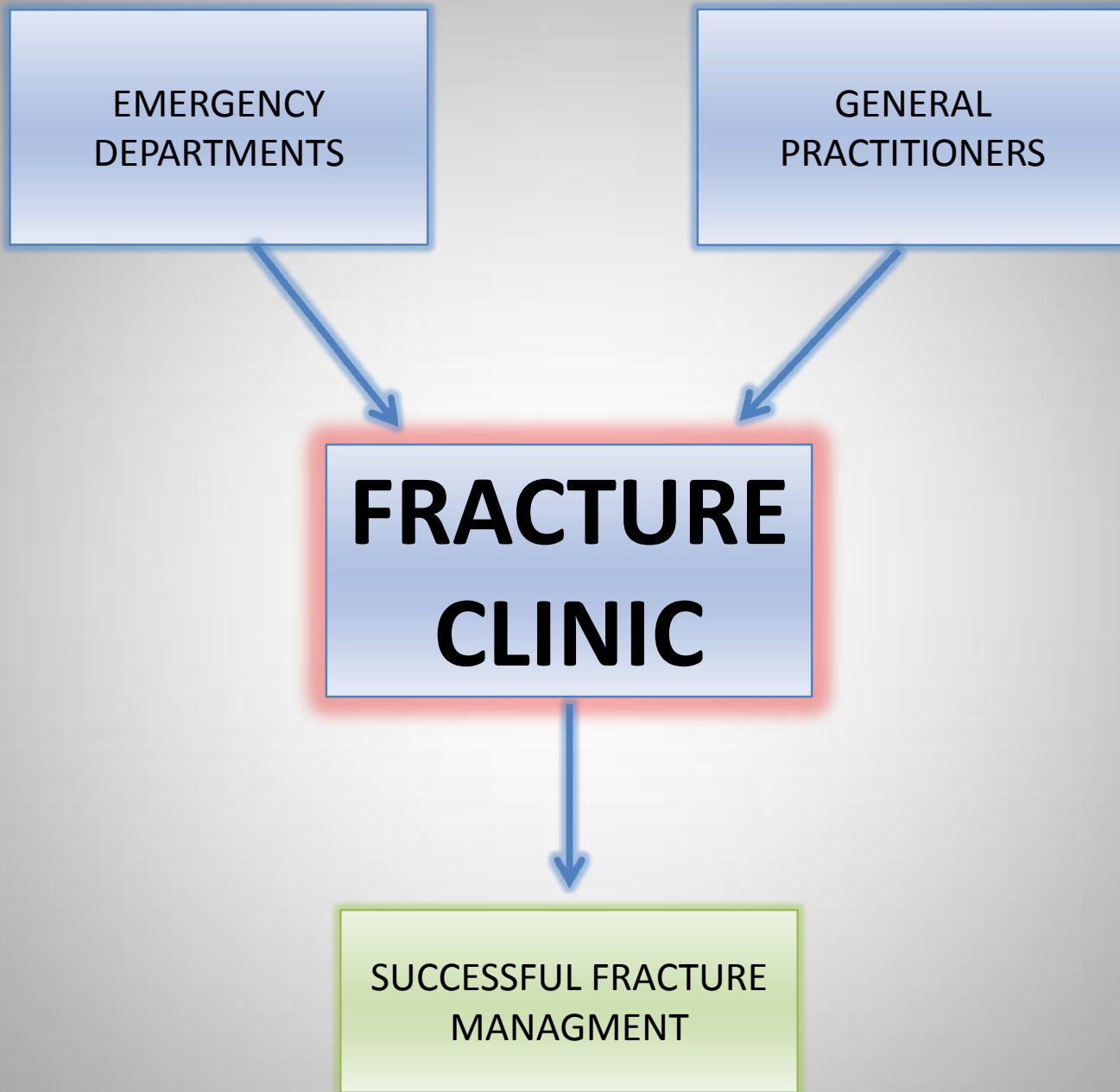
**NOT ALL
FRACTURES
NEED TO BE
FIXED**

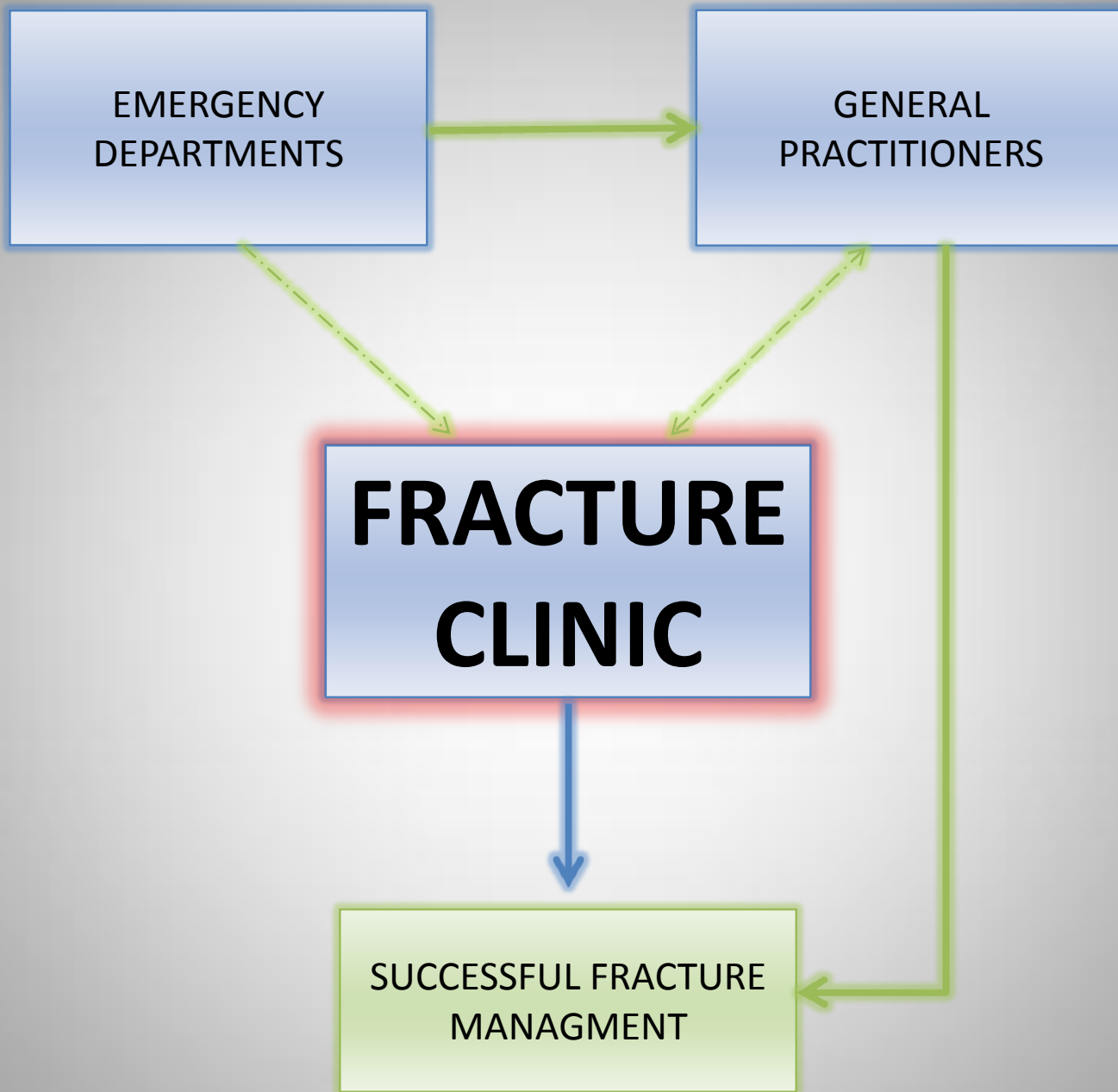
FRACTURE CLINIC



Unhappy
fracture clinic
waiting room







Happy clinic waiting room



PRINCIPLES

1. Always look at the X-ray
 - Do not rely on the report
2. Early displacement of a fracture = UNSTABLE
3. Know what is acceptable displacement
4. Plaster immobilisation of a STABLE fracture leads to secondary bone healing with fracture callous
5. Clinical union precedes radiological union by 4 – 6 weeks
6. Children remodel

PLASTER TECHNICIANS

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REFERRAL FORM

PATIENT DETAILS

Given name _____ Surname _____
Date of birth _____ UR number _____
Patients address _____
Suburb _____ Postcode _____
Patient phone Home _____ Work _____ Mobile _____
Interpreter required Yes / No
Public TAC Work Cover DVA White DVA Gold

REFERRING DOCTOR DETAILS

Patients address _____
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Telephone _____ Fax _____
Diagnosis _____

Procedure to be performed _____

CONTACT DETAILS

John Kinealy: 0425 752 775 P.O. Box 357, Ascot Vale VIC 3032
Robert Vragovski: 0407 991 424 ABN: 98 105 645 681



CLAVICLE FRACTURES

CLAVICLE FRACTURES



Undisplaced



Comminuted



Displaced

CLAVICLE FRACTURES

Non Operative Treatment

- Sling for comfort initially
 - Up to 2 weeks
- Start mobilisation as soon as pain bearable
 - Prevents shoulder stiffness
- Warn about formation of a lump at fracture site
 - Fracture callous
- X-ray after 6 weeks
 - Look for callous
 - Fracture line will still be present
- No loading/contact sports 3 months

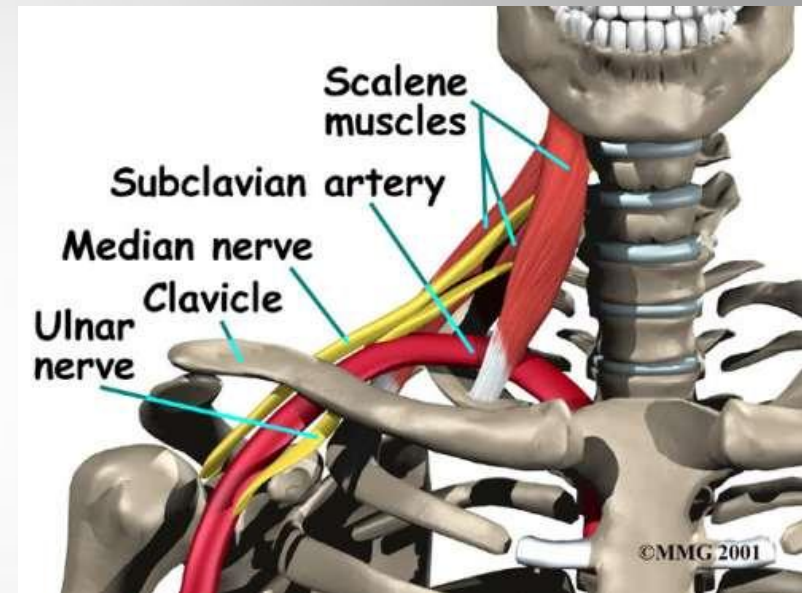
CLAVICLE FRACTURES



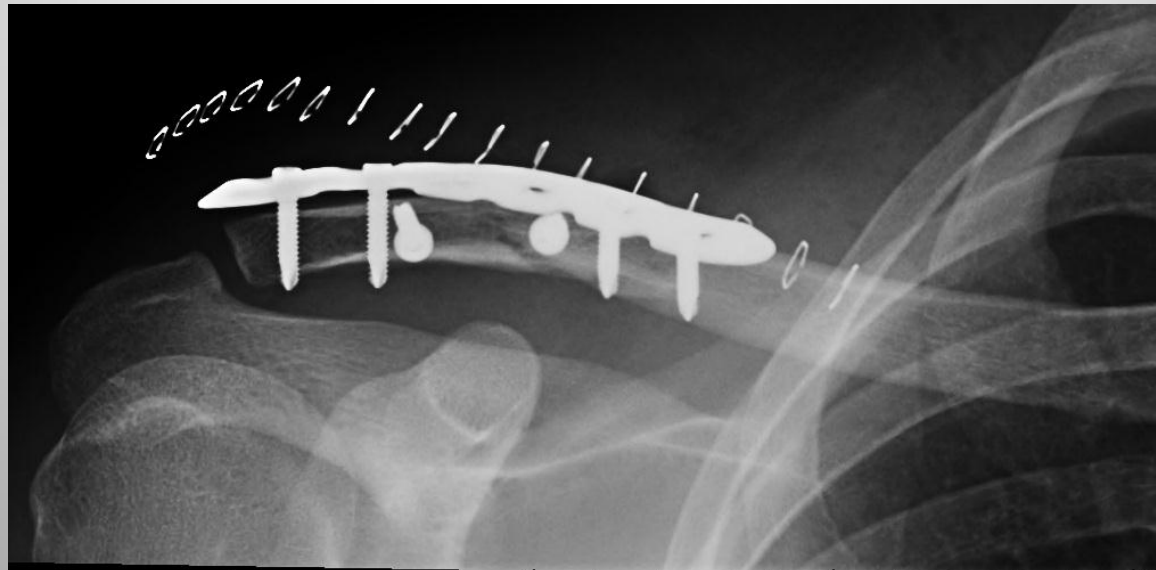
CLAVICLE FRACTURES

When to refer

- Acutely
 - Open fractures
 - Neurovascular compromise
 - > 2cm shortening
 - Lateral fractures
- Delayed
 - Painful non unions
 - Symptomatic malunions



CLAVICLE FRACTURES





RADIAL HEAD FRACTURES

RADIAL HEAD FRACTURES

**NON
OPERATIVE**



Simple, minimal displaced



OPERATIVE

Comminuted

RADIAL HEAD FRACTURES

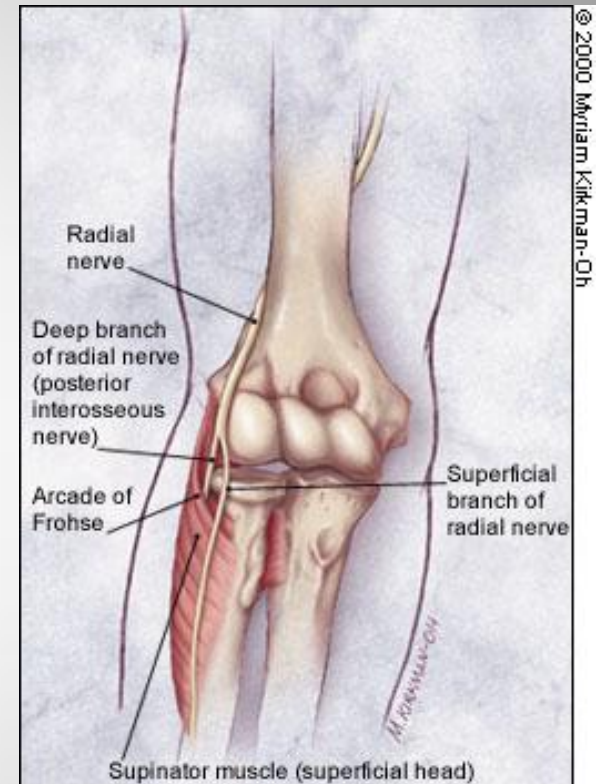
Non Operative Treatment

- Sling for comfort only
 - DO NOT PLASTER
- Mobilise elbow as soon as possible
- Elbow stiffness is the biggest problem
 - Warn the patient that they may never regain full elbow extension
- No further Xrays required

RADIAL HEAD FRACTURES

When to refer

- Acutely
 - Open fractures
 - Neurological compromise
 - Posterior interosseus branch of radial nerve
 - Comminuted, displaced fractures
 - > 2mm articular step
- Delayed
 - Persistent pain
 - Remember some degree of stiffness is to be expected





DISTAL RADIUS FRACTURES

DISTAL RADIUS FRACTURES

Paediatrics

Principles

- Children have a great capacity to remodel
- If the arm looks straight, then operation unlikely (regardless of what the xray looks like)
- Be wary of growth plate injuries
- Children often get greenstick fractures
- Children remodel!

DISTAL RADIUS FRACTURES

Paediatrics



DISTAL RADIUS FRACTURES

Paediatrics



Greenstick fracture



United – 3mo

DISTAL RADIUS FRACTURES

Paediatrics

Non Operative Treatment

- Above elbow plaster
- Re Xray at 1 - 2 weeks
 - If no displacement, continue plaster for total of 6 weeks
 - If displaces – implies fracture unstable – Refer
- Remove plaster at 6 weeks
- Assess for clinical union
 - Absence of pain at fracture site
 - Pain at wrist and elbow joints normal due to stiffness
- No Xray required at 6 weeks if clinically united
- Gradually progress to unrestricted activities over 4 wks

DISTAL RADIUS FRACTURES

Paediatrics

When to refer

- Open fractures
- Neurovascular compromise
- Clinical deformity
- Growth plate fractures
- Radius AND ulnar fractures

DISTAL RADIUS FRACTURES

Paediatrics



Growth plate injury:
Salter Harris 2 Distal
radius fracture

DISTAL RADIUS FRACTURES

Paediatrics



Distal radius and
ulnar fracture -
unstable

DISTAL RADIUS FRACTURES

Adults

Principles

- Adults do not remodel fractures
- Normal anatomical alignment is essential
- Below elbow plasters
- Adults develop joint stiffness easily

DISTAL RADIUS FRACTURES

Adults

Normal Anatomical alignment



Radial inclination
 $15^{\circ} - 20^{\circ}$



Volar tilt
 $0^{\circ} - 15^{\circ}$

DISTAL RADIUS FRACTURES

Adults

Non Operative Treatment

- Below elbow plaster
- Re Xray at 1 - 2 weeks
 - If no displacement, continue plaster for total of 6 weeks
 - If displaces – implies fracture unstable – Refer
- Remove plaster at 6 weeks
- Assess for clinical union
 - Absence of pain at fracture site
 - Pain at wrist and elbow joints normal due to stiffness
- No Xray required at 6 weeks if clinically united
- Gradually progress to unrestricted activities over 4 wks
- Wrist stiffness is a big problem – physio if required

DISTAL RADIUS FRACTURES

Adults

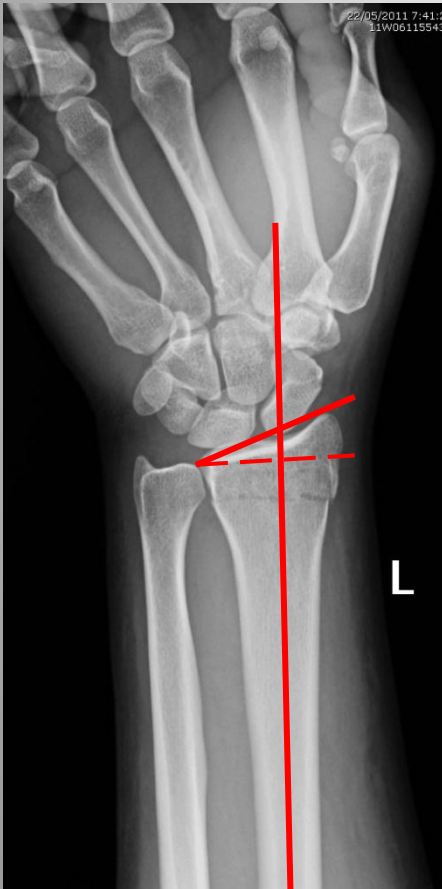
When to refer

- Open fractures
- Neurovascular compromise
- Clinical deformity
- Radius AND ulnar fractures – Unstable
- Intra articular fractures
- Variation from normal anatomical alignment

DISTAL RADIUS FRACTURES

Adults

Normal Anatomical alignment



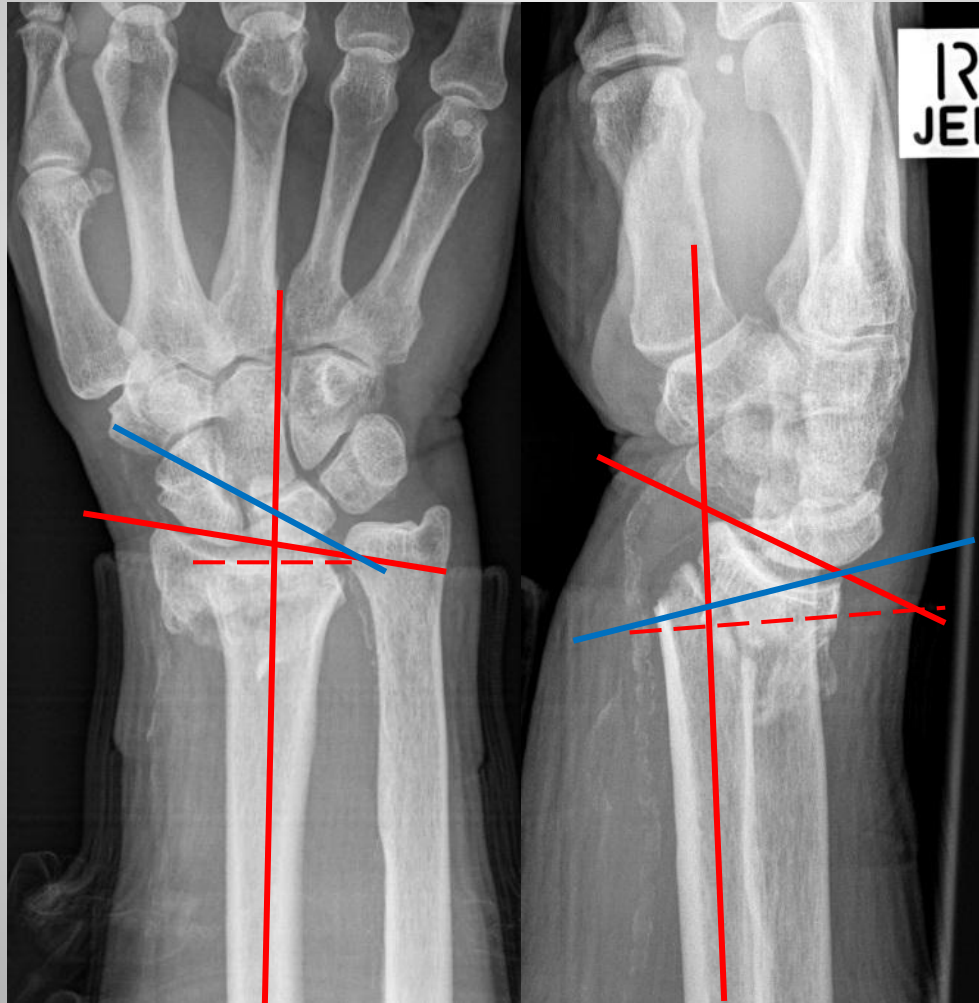
Radial inclination
 $15^{\circ} - 20^{\circ}$



Volar tilt
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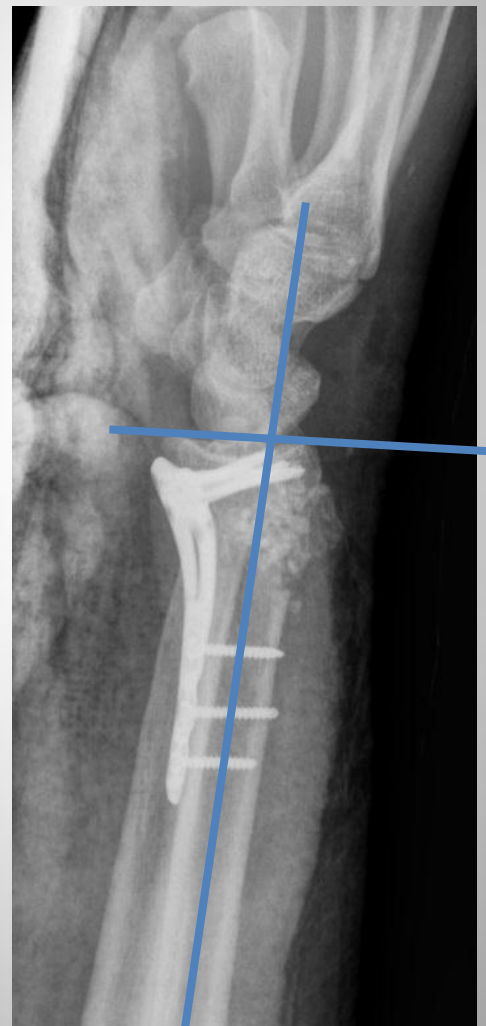
DISTAL RADIUS FRACTURES

Adults



DISTAL RADIUS FRACTURES

Adults





ANKLE FRACTURES

ANKLE FRACTURES

Lateral malleolar fractures

**Weber A:
STABLE**



Weber B:



**Weber C:
UNSTABLE**



ANKLE FRACTURES

Lateral malleolar fractures

Non Operative Treatment

1. Weber A fractures

- Stable
- Camwalker ± crutches for 6 weeks
- Weight bear as tolerated in camwalker
- Camwalker can be taken off when not weightbearing
- Xray at 6 weeks
- Clinical union = no pain at fracture site





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ANKLE FRACTURES

Lateral malleolar fractures

Non Operative Treatment

2. Weber B fractures

- Stable if undisplaced and mortice intact
- Full below knee plaster with crutches
- Re Xray at 1 – 2 weeks
- Plaster for 6 weeks total
- X ray at 6 weeks out of plaster
- Clinical union = no pain



ANKLE FRACTURES

Lateral malleolar fractures

When to refer

- Acutely
 - Displaced Weber B fractures
 - All Weber C fractures
 - Bimalleolar fractures
- Delayed
 - Persistent pain

ANKLE FRACTURES

Lateral malleolar fracture



Displaced
Weber B



Weber C



Bimalleolar

ANKLE FRACTURES

Medial malleolar fracture



ANKLE FRACTURES

Medial malleolar fracture

**BEWARE THE
MISSED HIGH
FIBULAR
FRACTURE!**

ANKLE FRACTURES

Medial malleolar fracture



ANKLE FRACTURES

Medial malleolar fractures

Non Operative Treatment

- Make sure you have a full length fibula xray
- Below knee plaster and crutches
- Re Xray at 1-2 weeks to ensure no displacement
- Plaster off at 6 weeks
- Xray out of plaster at 6 weeks
- Clinical union = no pain

ANKLE FRACTURES

Medial malleolar fractures

When to refer

- Acutely
 - Open fractures
 - Displaced fractures
 - Bimalleolar fractures
 - High fibula fractures
- Delayed
 - Persistent pain

ANKLE FRACTURES

Medial malleolar fractures





5th METATARSAL FRACTURES

5th Metatarsal Fractures



5th Metatarsal Fractures

- Avulsion fracture due to pull of peroneus brevis tendon
- Forced inversion of ankle
- Presents as sprained ankle
- Always xray a sprained ankle
- Treatment aims to prevent ankle inversion

5th Metatarsal Fractures

Non Operative Treatment

- Camwalker ± crutches
- Xray at 8 weeks
- Assess for clinical union at 8 weeks
- Sometimes clinical union may be delayed
 - Especially smokers and diabetics
- If still tender, continue in camwalker for further 6 – 8 weeks
- Reassess clinically
 - If no pain = good
 - If painful = Refer



5th Metatarsal Fractures

When to refer

- Acutely
 - Open fractures
 - Markedly displaced fractures
- Delayed
 - **Painful** non unions
 - Non unions can be painless – leave alone

5th Metatarsal Fractures



KEY POINTS

1. Not all fractures need an operation
2. Not all fractures need a plaster
3. If a plaster needs to be done, you can refer to a plaster technician
4. A picture is worth a thousand words
 - Insist on seeing the Xray not just the report
 - When referring/seeking advice send a copy of the actual Xray
 - Email/SMS/Photocopy
5. If something needs to be done, up to 2 weeks delay is OK
6. Children remodel
7. Clinical union is more important than radiological union
8. Clinical union predates radiological union
9. If in doubt, call

THANK YOU



Mr Duy Thai

Ph: 0409 015 117

Email: thaid@ausdoctors.net

AVHAP Educational talk 28 June 2011, Duy Thai



Western Health



Northern Health