

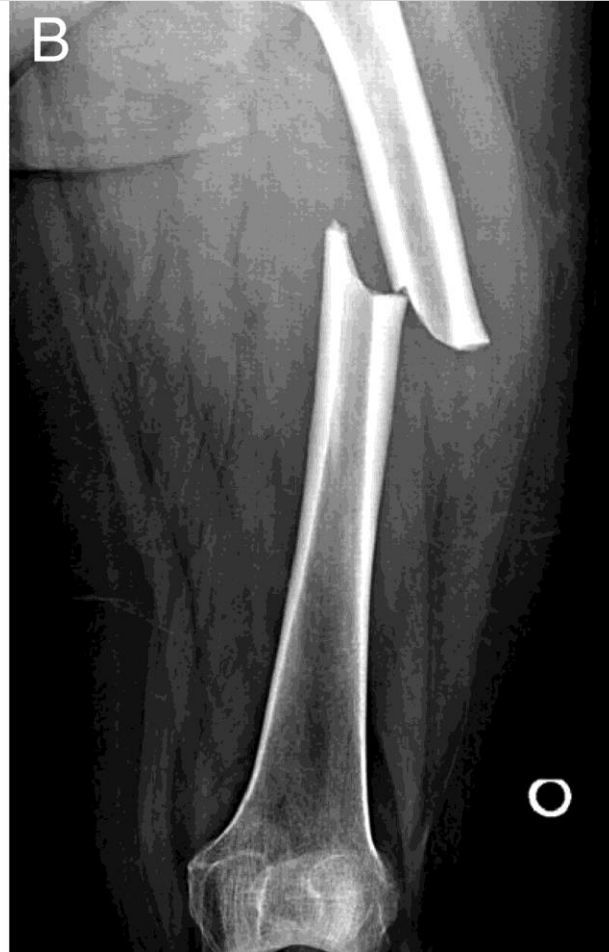
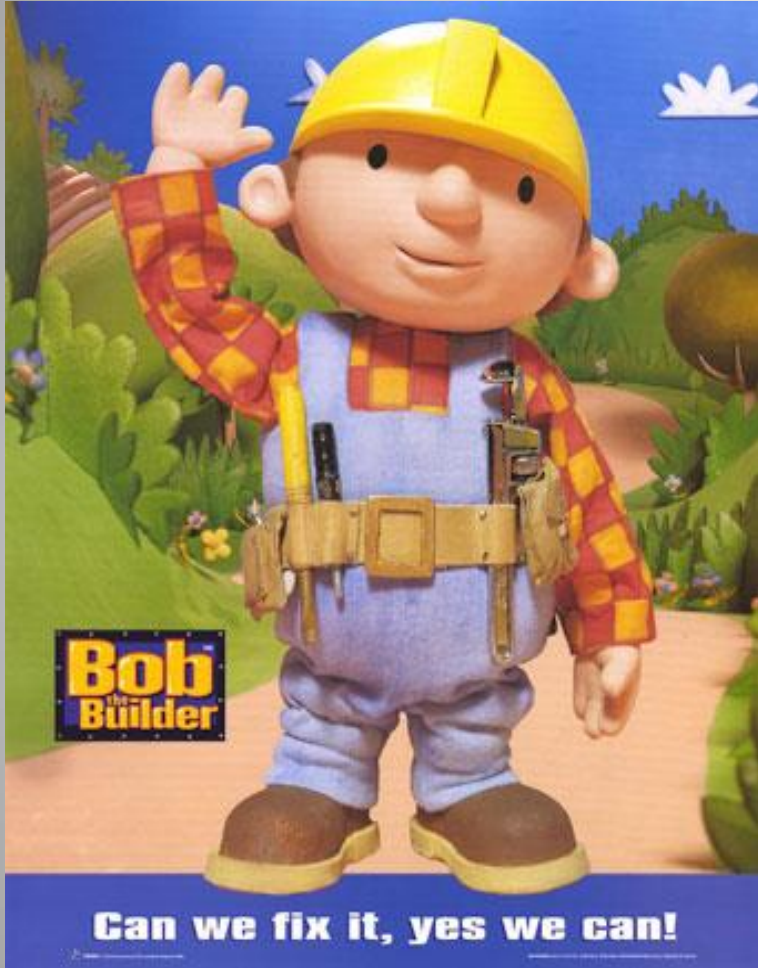
# Non Operative Management of Common Fractures

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**NOT ALL  
FRACTURES  
NEED TO BE  
FIXED**

**FRACTURE  
CLINIC**

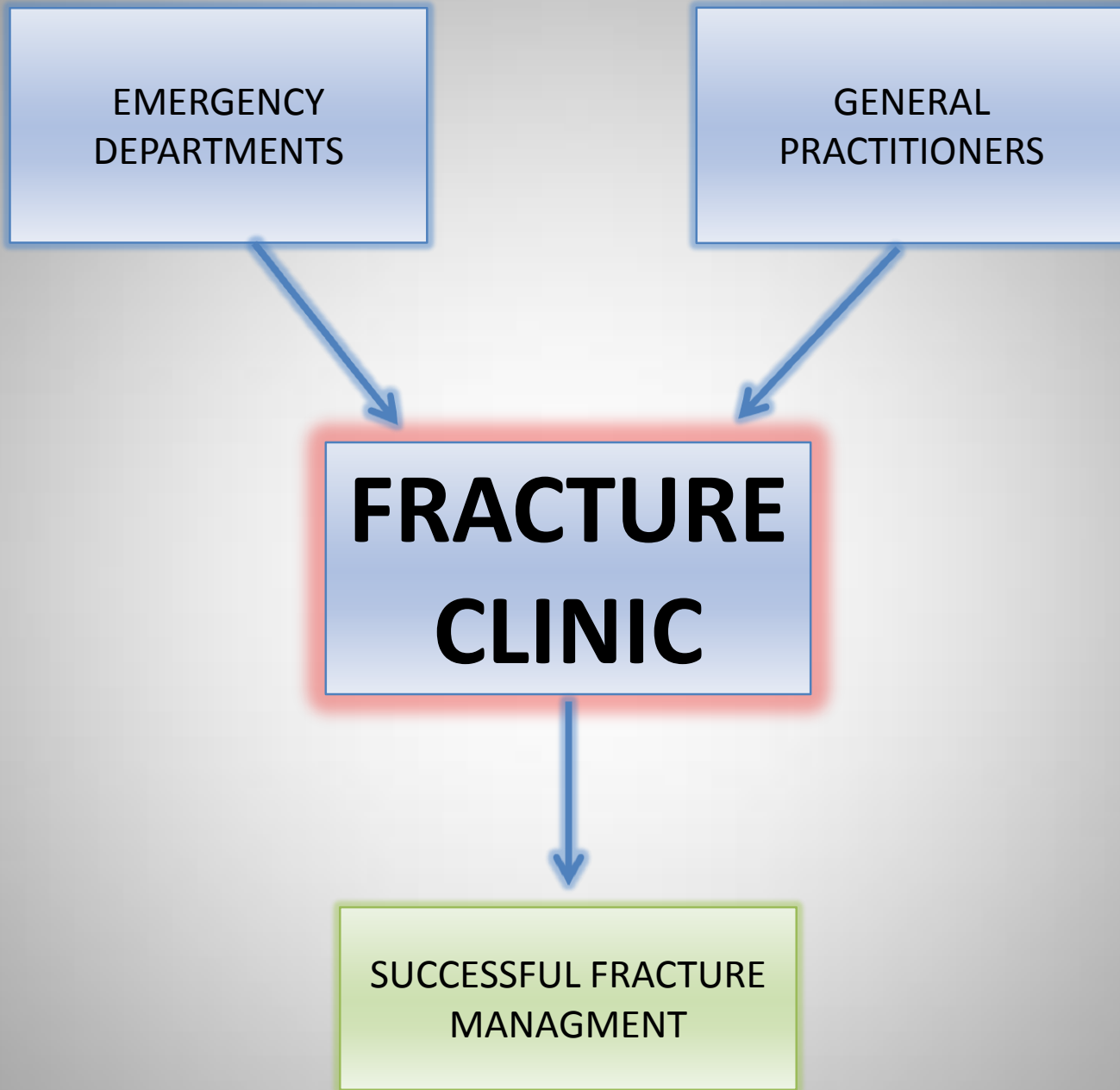


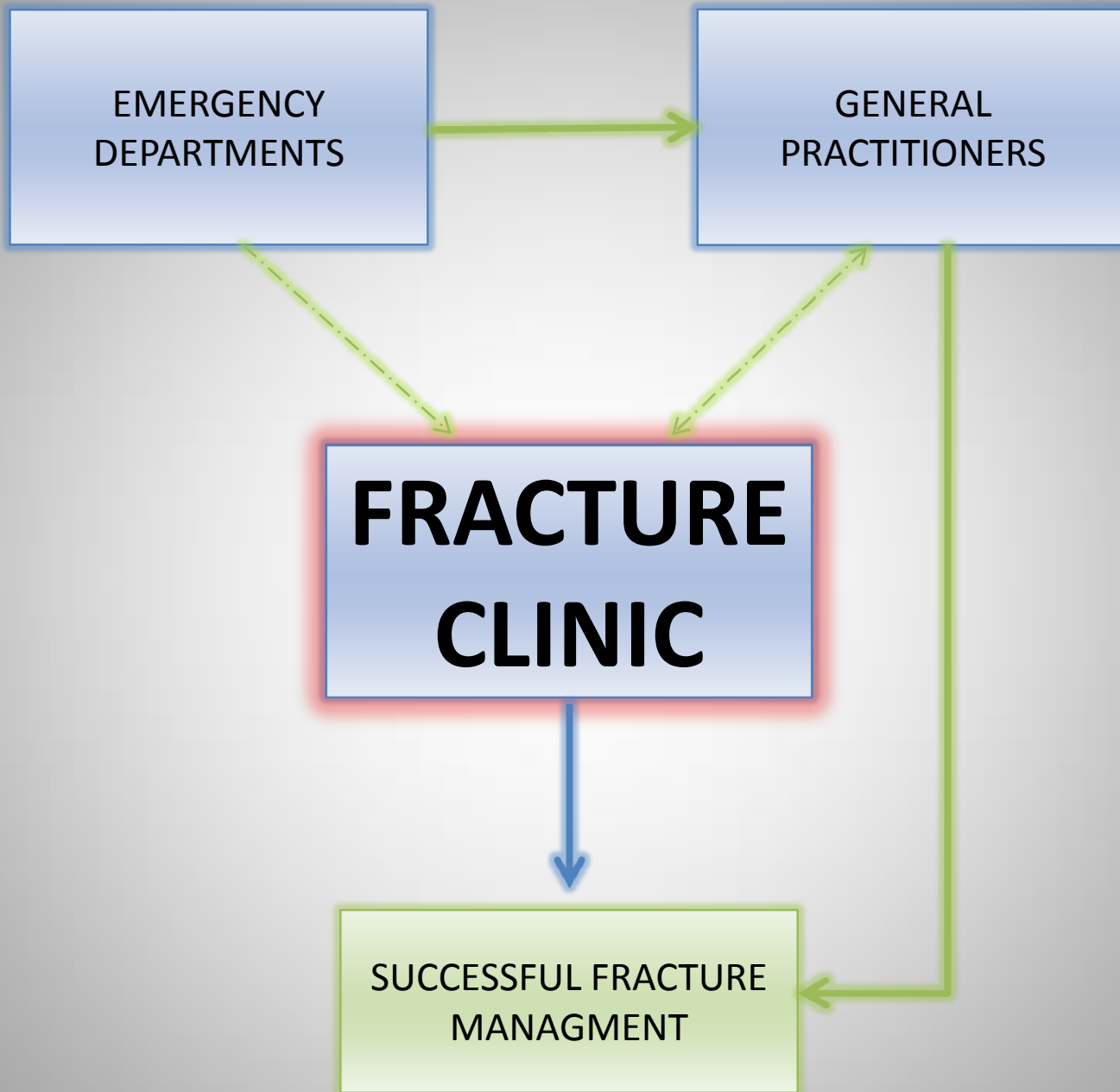
EMERGENCY  
DEPARTMENTS

GENERAL  
PRACTITIONERS

**FRACTURE  
CLINIC**

SUCCESSFUL FRACTURE  
MANAGEMENT









# 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



# 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

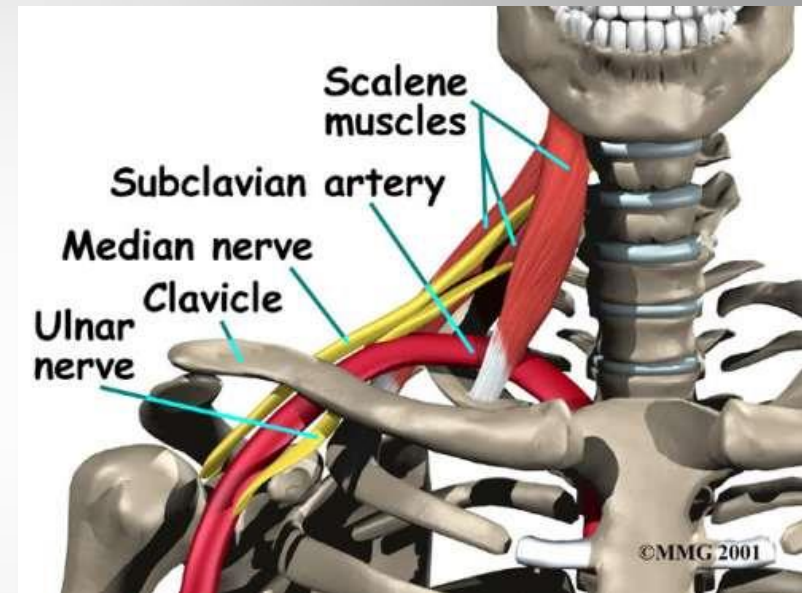
# CLAVICLE FRACTURES



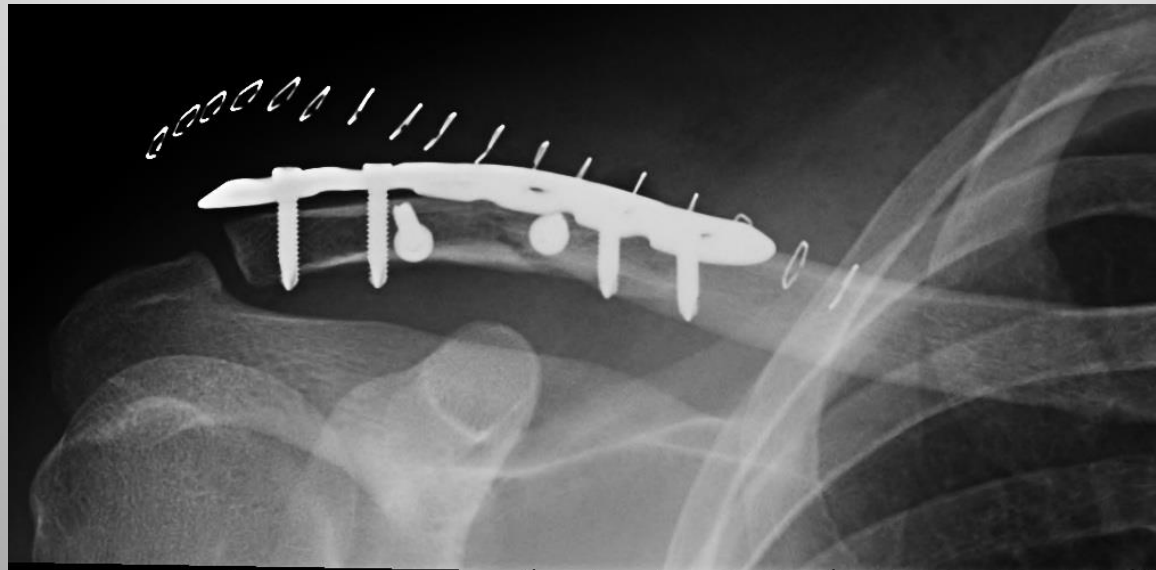
# CLAVICLE FRACTURES

## 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

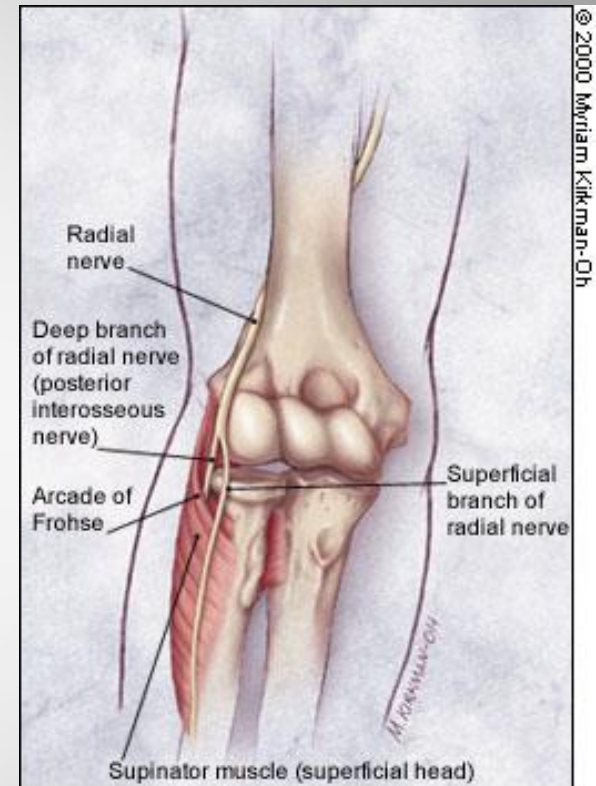
## Non Operative Treatment

- 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

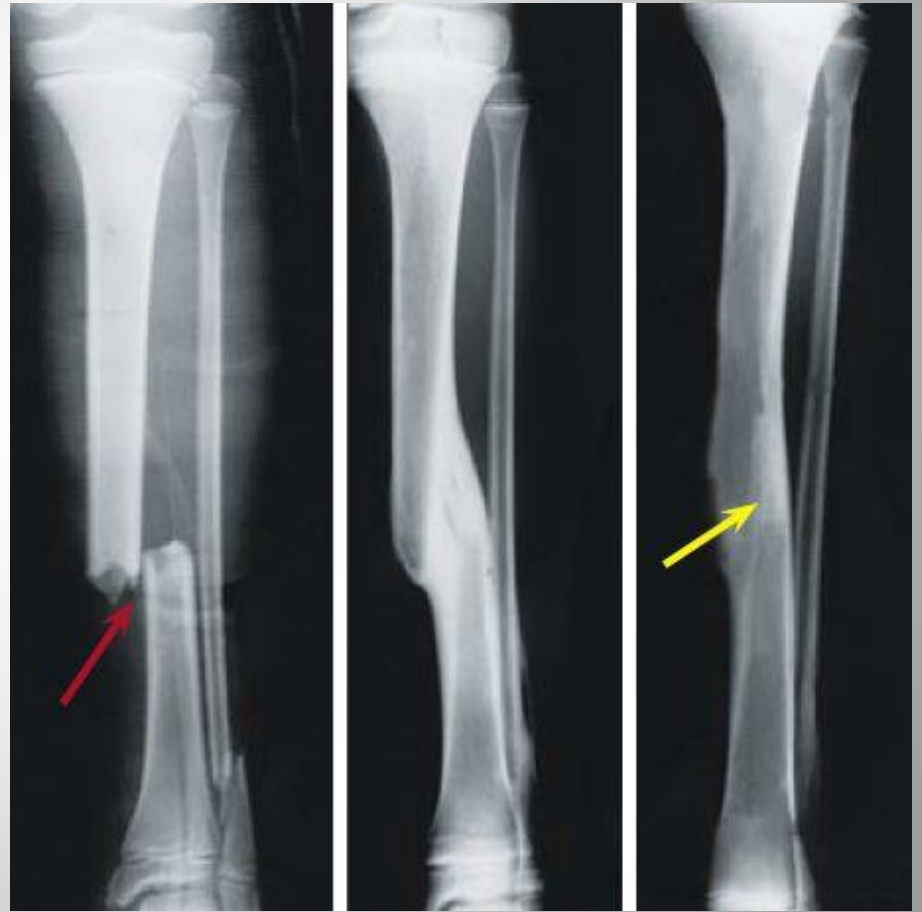
## Paediatrics

### 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

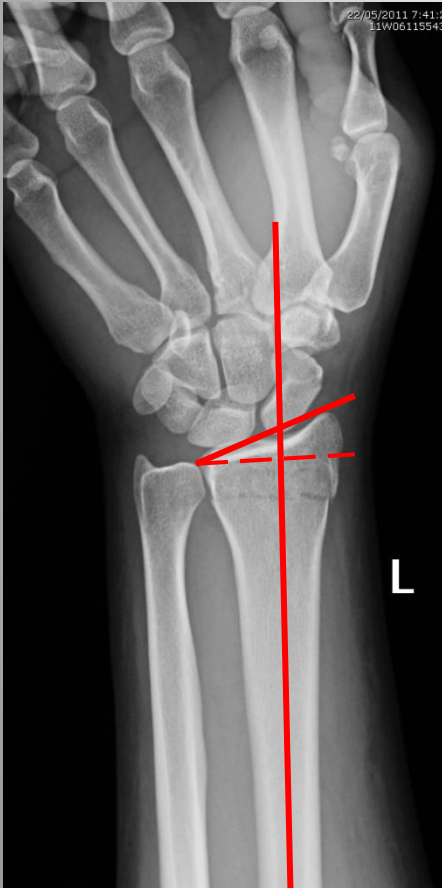
- Adults do not remodel fractures
- Normal anatomical alignment is essential
- Below elbow plasters
- Adults develop joint stiffness easily



# 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  
 $15^{\circ} - 20^{\circ}$

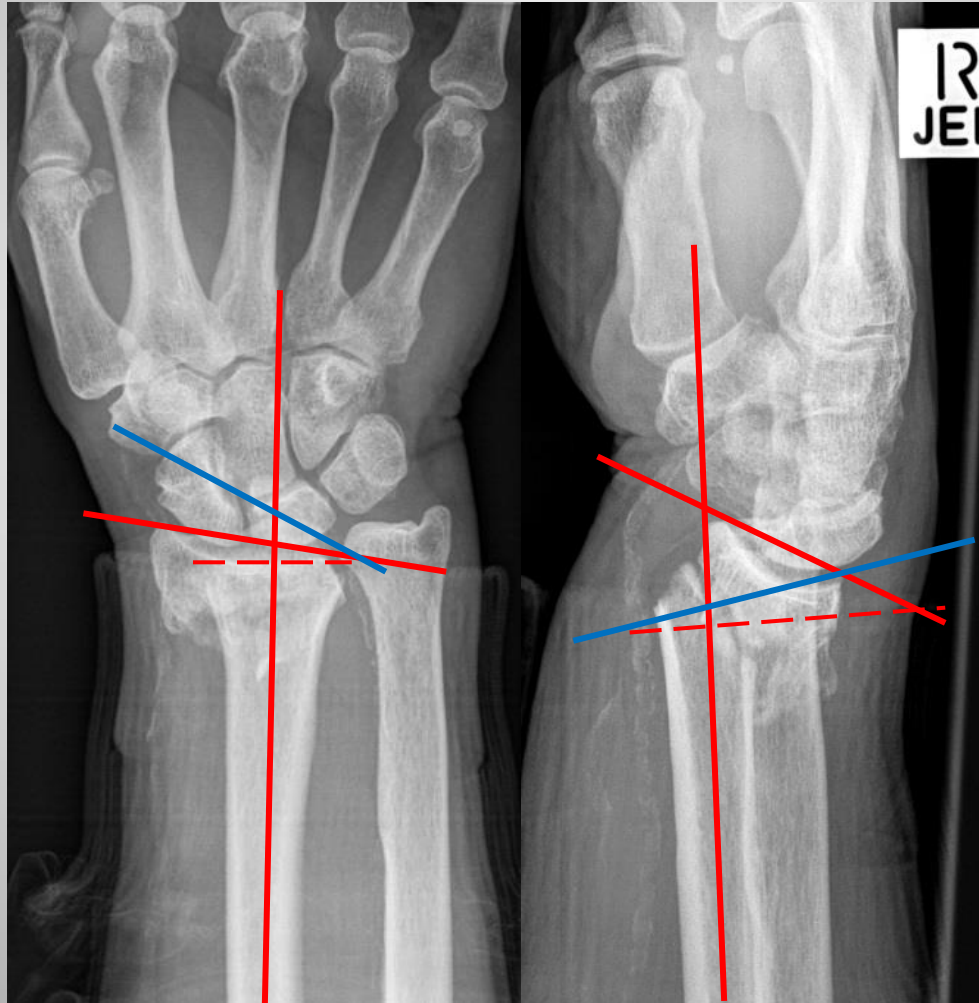


Volar tilt  
 $0^{\circ} - 15^{\circ}$



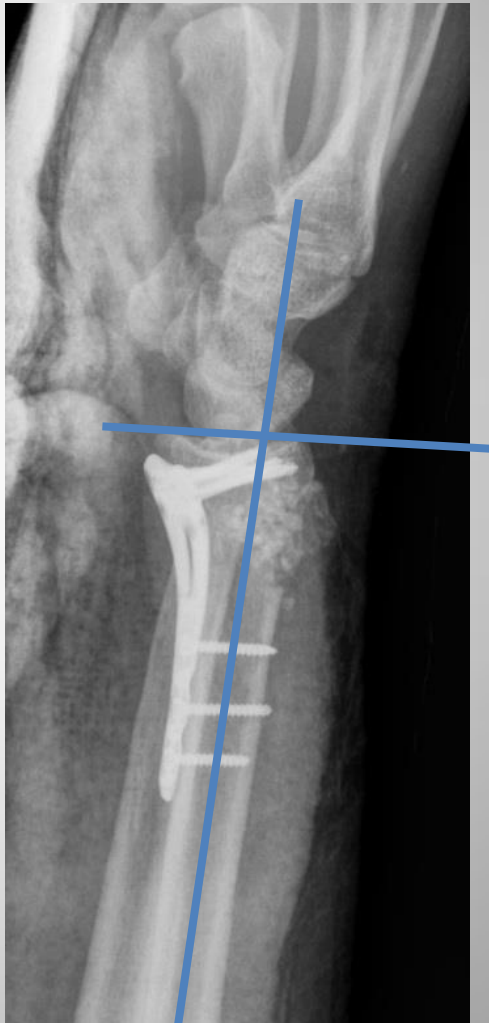
# DISTAL RADIUS FRACTURES

## 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





# 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



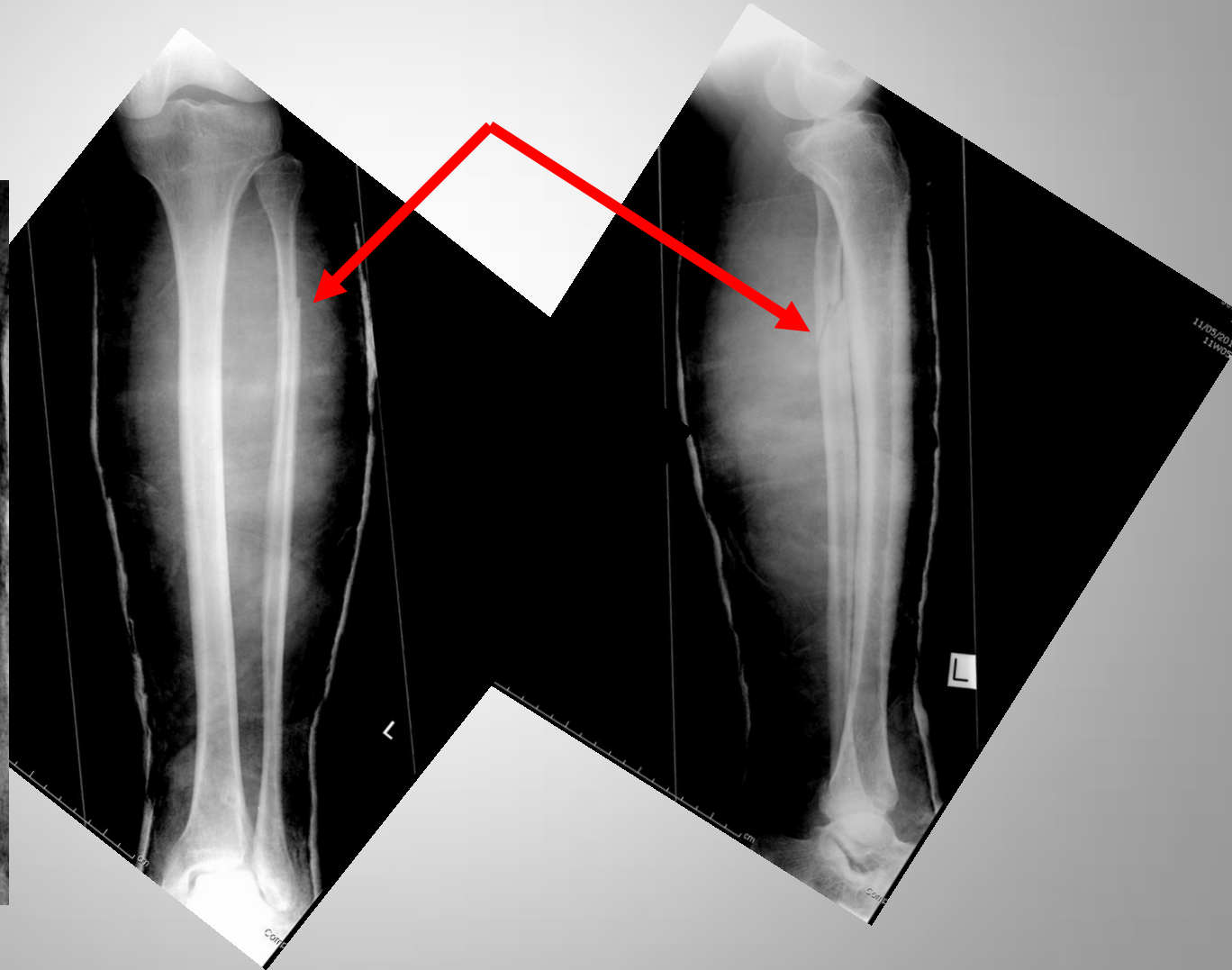
# ANKLE FRACTURES

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





# 5<sup>th</sup> METATARSAL FRACTURES



# 5<sup>th</sup> Metatarsal Fractures



# 5<sup>th</sup> 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

# 5<sup>th</sup> 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



# 5<sup>th</sup> Metatarsal Fractures

## When to refer

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

# 5<sup>th</sup> 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



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