

## 03 Principles of Non Operative Management – adult + paediatric

### PRO TIPS

- The ability to manage a fracture non-operatively is dependent on both the residual intact soft tissues and the fracture pattern. This is usually evident from the initial x-rays.
- Many clinician’s non operative strategies could be best described as ‘neglect’. Successful non operative management involves attention to detail, regular review and adjustment/change of splintage as the soft tissue envelope evolves.
- Beware paediatric diaphyseal fractures (particularly forearms) with an intact periosteal hinge. They will heal asymmetrically and the deformity will increase. You must break the hinge to ensure you do not lose alignment.
- Re-modelling is not magic, there are limitations, know them! ([Cambridge Orthopaedics](#))
- Functional bracing can usually be introduced once the acute inflammatory phase has settled, within approximately 2 weeks. Before this time the soft tissues will be too swollen and too sore to apply hydrostatic pressure.
- Look through Sir John Charnley’s book ‘[The Closed Treatment of Common Fractures](#)’ [Full text] it is full of gems. You may never treat some of these fractures non-operatively but it is useful in helping you understand the natural history and potentially how to reduce in order to internally fix.
- Look at the Sarmiento chapter (Review Article) and find out how to apply a cast, how to progress treatment and weight bear at 2 weeks.
- If you don’t want to be putting on rubbish plasters for the rest of your professional life, go to plaster room and learn how to do it properly!
- Do you know the [GMC guidelines](#) with regard to explaining and offering operative and nonoperative treatment?

### UK ISCP TRAUMA + ORTHOPAEDIC SYLLABUS

#### Knowledge

0 = No experience expected / 1= Has observed or knows of / 2= Can manage with assistance / 3 = Can manage whole but may need assistance / 4= Able to manage without assistance including potential common complications Green text = Oxford Trauma Service suggestions			
Topic	CORE	ST3-ST8	>ST8
<b>Prostheses and Orthoses</b>			
Principles of design	1	4	4
Prescription and fitting of standard orthoses	1	4	4
<b>Biomechanics &amp; Biomaterials</b>			
Splintage and traction	2	4	4
Principles of casting	3	4	4
<b>Non-operative</b>			
Non-operative management of fractures (paediatric + adult)	3	4	4
<b>Non-operative</b>			
Rehabilitation of the injured patient	3	4	4

#### Technical

0 = No experience expected / 1= Has observed or knows of / 2= Can manage with assistance / 3 = Can manage whole but may need assistance / 4= Able to manage without assistance including potential common complications Green text = Oxford Trauma Service suggestions			
Topic	CORE	ST3-ST8	>ST8
Cast application (all areas)			

Please find below, resources that cover the syllabus objectives.

## DISCUSSION SLIDES

OTA Resident Lecture - [Closed Reduction, Traction and Casting Techniques](#)

## RECOMMENDED REVIEW RESOURCES

### Non Operative Management

- Sir John Charnley – [The Closed Treatment of Common Fractures](#)
- AO Alliance – [Nonoperative Fracture Treatment](#)
- Melbourne [Paediatric Fracture Guidelines](#) (ED, Fracture Clinic, Education, Family Resources - you will need to select the sections from the top banner)
- Rockwood + Green Chapter 09a: Nonoperative Management of Fractures p248-295

### Casting Technique

- Rockwood + Green Chapter 03p: Cast and Splint Immobilisation p40-65
- [AO Surgery Reference Videos](#)
- [Humeral coaptation splint](#)
- Ankle close contact cast (AIM)
  - Part 3 – [Introduction](#)
  - Part 4 – [Principles of Technique](#)
  - Part 5 – [Preparation](#)
  - Part 6 – [Application](#)
- Below Elbow Soft Cast [Part 1](#) [Part 2](#) [Part 3](#)

## ABSTRACTS + FULL TEXT

### General

#### Casts + Splintage

Halanski, JAAOS 2008 – [Cast and splint immobilisation: Complications](#)

### Specific Fractures

#### Proximal Humerus

Rangan – [Surgical vs nonsurgical treatment of adults with displaced fractures of the proximal humerus: the PROFHER randomized clinical trial](#), JAMA 2015 Mar 10;313(10):1037-47

#### Humeral Shaft

Sarmiento – [Functional bracing for the treatment of fractures of the humeral diaphysis](#), J Bone Joint Surg Am, 2000 Apr;82(4):478-86.

#### Olecranon

Duckworth et al, Bone Joint J, 2017 Jul;99-B(7):964-972 - [Prospective randomised trial of non-operative versus operative management of olecranon fractures in the elderly](#)

#### Spine

Jaffray – [Early mobilisation of thoracolumbar burst fractures without neurology](#), BJJ 2016

#### Tibial Shaft

Sarmiento – [450 closed fractures of the distal third of the tibia treated with a functional brace](#), Clin Orthop Relat Res, 2004 Nov;(428):261-71

## Ankle

Keene + Willett, Bone Joint J, 2019 Dec;101-B(12):1472-1475. [Implications of the Ankle Injury \(AIM\) trial: close contact casting or surgery for older adults with an unstable ankle fracture?](#)

Keene et al, Health Tech Assess 2016 – [The Ankle Injury Management \(AIM\) Trial](#)

Bauer et al – [Thirty-year follow-up of ankle fractures](#), Acta Orthop Scand, 1985 Apr;56(2):103-6

## Achilles Tendon

Hutchison - [The treatment of a rupture of the Achilles tendon using a dedicated management programme](#), Bone Joint J 2015 Apr;97-B(4):510-5

Aujla – [Non-operative functional treatment for acute Achilles tendon ruptures: The Leicester Achilles Management Protocol \(LAMP\)](#), Injury 2019 Apr;50(4):995-999