Poole Traction splint

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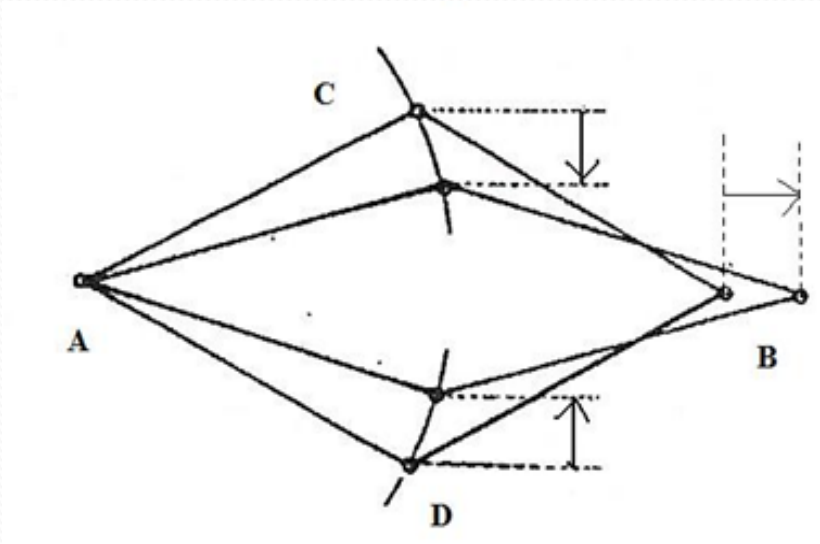
Complex fractures

- High energy
- Deformity patterns/ instability
- Collapse of soft tissue envelope
- Comminuted
- May not be conducive to ORIF

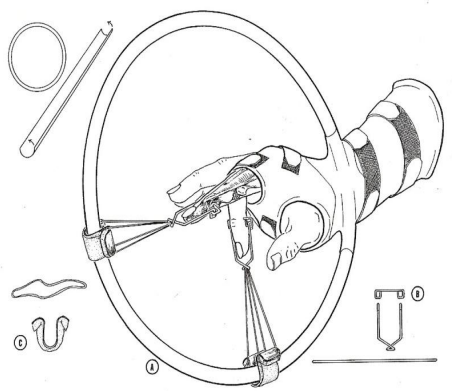
Ligamentotaxis principle

Clinical application



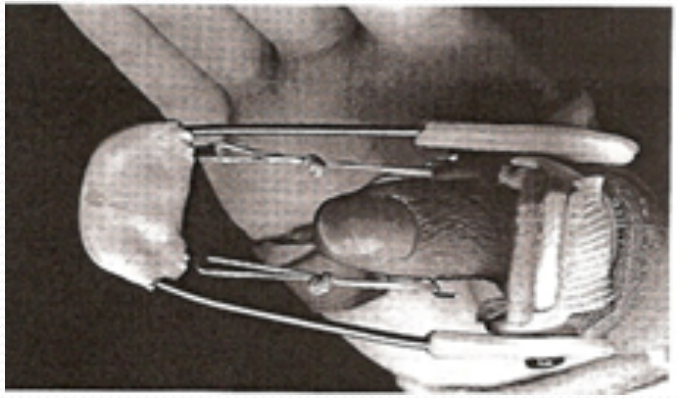
- 'Ligamentotaxis' (Vidal et al 1978).
- Involves the application of distal traction to the digit that allows both the reduction of articular fragments and the realignment of joint surfaces by providing tension on their ligamentous attachments (Schenk 1994).

Types of traction

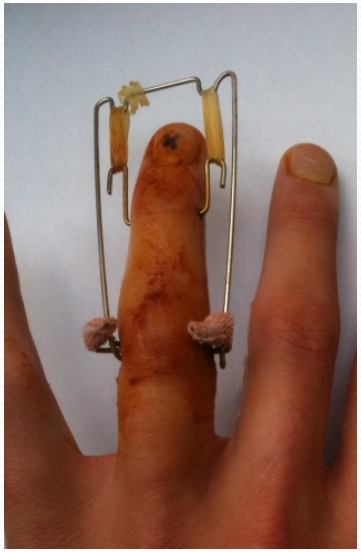


Arcuate

Skin/ tape



frame with bands

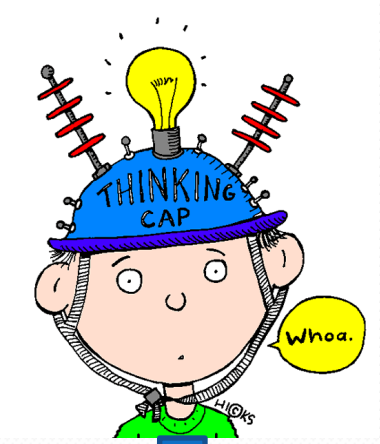


Pins and rubber

Poole Traction Splint (PTS)

- Enables non invasive ligamentotaxis using nail traction
- Currently the only documented **non invasive** method in use that allows traction **combined with motion**
- Only non invasive treatment identified in the literature that enables the treatment of multiple digits
- **Therapist led treatment**

Key issues challenged in the development of the Poole Traction splint



- Which fracture types/ patterns?
- How much traction is required?
- How important is articular congruity?
- How important is mobilisation combined with traction?

•10 years work
•Study of 54 patients
•MSc dissertation
(integrative literature review, Bradley 2010) 43 papers, 500 participants

Activity

- 4 groups- traction subject in each group. Apply the splint and analyse the following:

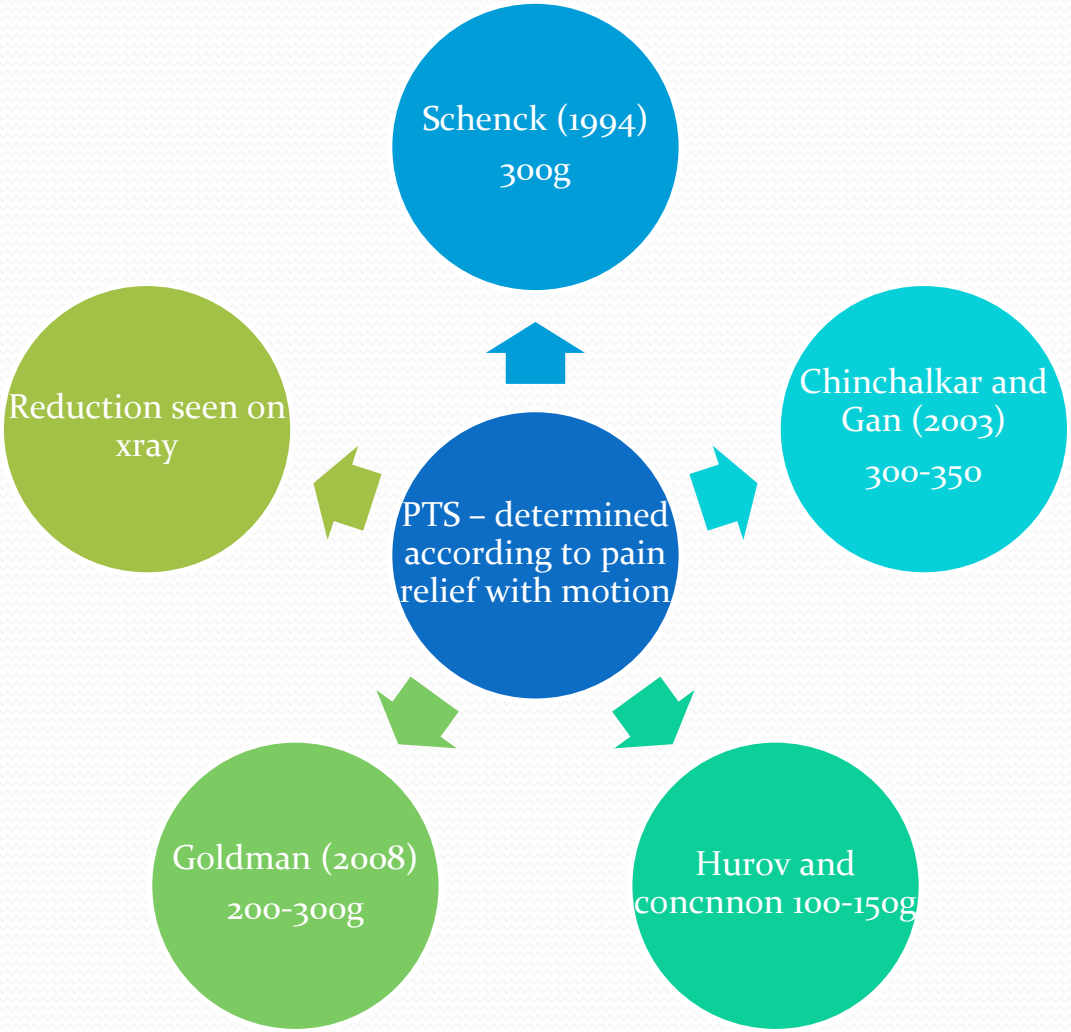
1. Which fracture types/ patterns would you consider treating with this method?
2. How much traction is required/ how would you determine this?
3. How important is articular congruity/ correction of fracture pattern?
4. How important is mobilisation combined with traction?

Fracture location and types

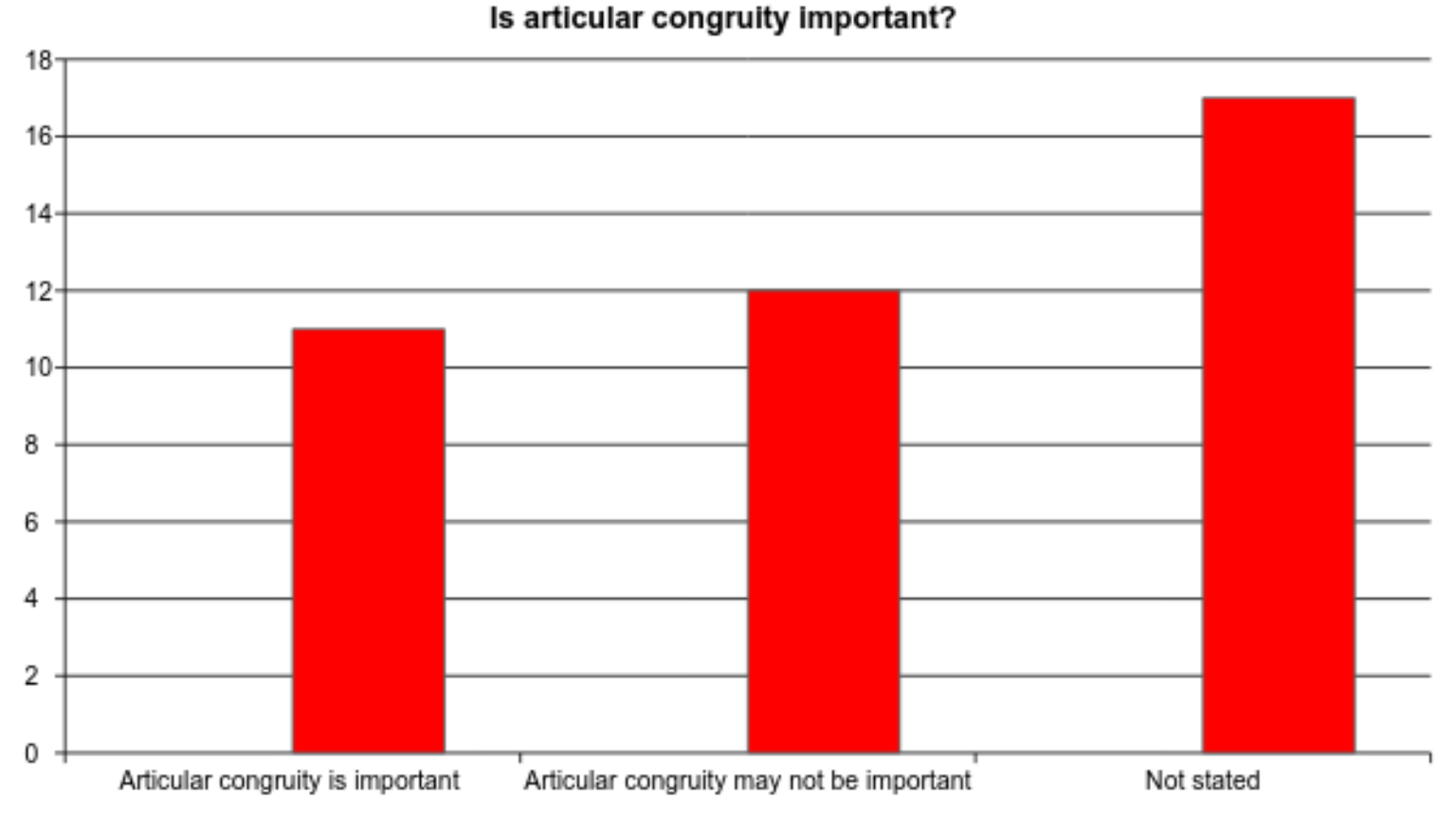
- Location
  - Proximal phalanx basal
  - Proximal phalanx shaft
  - Proximal phalanx distal
  - Middle phalanx basal
- P= 0.942

- Types
  - Pilon volar lip
  - Dorsal lip
  - Condylar
  - Oblique
  - spiral

Traction tension



Articular congruity



Mobilisation

"Fractures should be treated with the least invasive method that can result in stable reduction so that early mobilisation can begin PTS is the only non invasive method available to incorporate mobility"

Divelbiss (2009)

- Important to maintain soft tissue length
- Resolve oedema
- Prevent adhesions (cross linking of peri -articular structures)
- Stimulate mineral and bone quality

Case example

Conclusions

- PTS is now best practice at Poole hospital because…….
  - Anatomical correction of the fracture pattern or articular congruency may not be essential re requisites of a good outcome
  - Traction tension can be determined functionally
  - It combines mobilisation with traction
  - Any fracture type with the exception of transverse fractures can be treated with this method

Future

- NHS cost savings identified
- Innovations grant to roll out training nationally