Paediatric Hand Trauma:
- Tendon injuries

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The Royal Children’s Hospital
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Presentation outline

• Incidence & common injuries
• Paediatric specific considerations
• Flexor tendon treatment – A guide
• Extensor tendon treatment – A guide
• Occupation in therapy
Incidence & common injuries

- Lacerations are one of the highest occurring injuries of the hand in the 1-2 year old age group.
- Often lacerations to the hand, wrist or forearm can result in tendon damage.
Paediatric Specific Considerations

- Healing time frames
- Impact of growth
- Inability to specify or verbalise pain
- Behaviour and occupations
- Mobility - stiffness is not usually an issue
Tendons – treatment

Goals of therapy:
• Protect healing tendon
• Return to normal hand function

Considerations:
• Healing faster in children than adults
• Prone to hypertrophic scarring – long term influence of scar
• Compliance limited by developmental and behavioural factors
• Ability to follow rehab instructions
Flexor tendons

- Most common injury site - Zone II
- Most commonly occurs in three year old children

- Increased surgical difficulty in very young patients – reduced number of core suture strands, decreased repair strength, sacrifice of FDS

- Paediatric treatment is different to treatment in adults
Evidence supports immobilisation for up to 4 weeks following a flexor tendon repair, in splint or plaster.

<table>
<thead>
<tr>
<th>Age Considerations</th>
<th>Splint or Plaster</th>
<th>Plaster</th>
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<tbody>
<tr>
<td>School aged children</td>
<td>Wrist: neutral</td>
<td>Elbow: 90° flexion</td>
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<td></td>
<td>MCPJ: 40-90° flexion</td>
<td>Wrist: neutral</td>
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<td></td>
<td>IPJ: neutral</td>
<td>MCPJ: 40-90° flexion</td>
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<tr>
<td>Children under 6</td>
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<td>IPJ: neutral</td>
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<tr>
<td>Week 1-4</td>
<td>Immobilisation</td>
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<td>Week 3-4</td>
<td>Synergistic wrist and digit motion</td>
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| Week 4-6 | Cease splint/high risk tasks only  
Differential tendon glide  
Light functional hand use |
| Week 6  | Extension splinting (if required)  
Extension stretches |
| Week 8-12 | Resisted exercises  
Return to full activity |
Extensor tendon treatment: A Guide

Considerations

• Very few problems with stiffness
• Tape beneath splint for skin protection and tape splints on to secure them
• Risk of mouthing / removing / swallowing small splints
• Generally managed with immobilisation approach
Extensor tendon treatment: A Guide

- Mallet Finger Zone I-II
  Immobilise: DIPjt extension for 6-8 weeks

- Central Slip Zone III-IV
  Immobilise: PIPjt extension for 4-6 weeks

- Proximal zones V-VIII
  Immobilise: all digits & wrist in extension for 4 weeks

- 6-12 weeks – gradual return to flexion, functional hand use and resisted exercises
Therapeutic games and activities - general ideas for therapy
Flexion