Tendon Transfers: Hand and Wrist Extensor Tendon Reconstructive Surgery

Tendon transfer (TT) surgery is performed in the hand in order to improve lost function. This surgery involves moving a functioning tendon from its original attachment to a new one to restore the action of the extensor tendons. The aim of this surgery is usually to improve independent grasp and release of the hand; pre-operative function will need to be considered. Pre-operative assessment of the patient by a therapist is important to identify specific functional goals for surgery and provide patients with an understanding of the rehabilitation process.

Please note: This is a guideline of rehabilitation for therapists; any limitations and restrictions recorded in the patients' operation note should take precedence. These guidelines should be used in conjunction with your assessment of the patient. Your treatment should be clinically reasoned and adapted to the individual patient’s needs. Time frames are approximate; progress as clinically indicated, only moving onto the next phase once the patient can comfortably achieve phase appropriate exercises and tasks, unless the operation note specifies otherwise. The exercises offer ideas rather than being a prescription.

<table>
<thead>
<tr>
<th>Post-op: 0-2 weeks</th>
<th>2-4 weeks</th>
<th>4-8 weeks</th>
<th>8-12 weeks</th>
<th>12 Weeks onwards</th>
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<tbody>
<tr>
<td>Splinting</td>
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<tr>
<td>• Immobilised in cast</td>
<td>• Cast to be removed between 2-6 weeks depending on operative findings.</td>
<td>• Removal of splints for light¹ activities and home exercise programme (HEP).</td>
<td>• Discontinue night splint (unless reduced ROM/extension lag/pain/comorbidities).</td>
<td>• Splinting not essential.</td>
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</tbody>
</table>
| • Elevate operated limb | • Upon removal of cast:  
  - dynamic splint for daytime use and/or static splint to maintain correct tendon length. | • Continue with splint at night. | • Night splint only if required to address ongoing issues. | • Dynamic splint only if required to optimise activation of TT. |
| • Maintain ROM of all joints not protected by cast | • Splint(s) to be worn at all times (including at night). | • If not already provided and if appropriate consider:  
  - dynamic splint to encourage activation of TT.  
  - dynamic splint for function. | • Dynamic splint only if required to optimise activation of TT. |
| • Functional advice | | | | |

¹ Examples of light activities: using the telephone, handling money; holding a newspaper, shaving

² Examples of heavy activities: sports, lifting children, ironing, making a bed, gardening, lifting a full kettle.
<table>
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<tr>
<th>Advice</th>
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</table>
| - Skin care and hand hygiene.  
- Scar management.  
- Oedema management.  
- Functional advice. | - Skin care and hand hygiene.  
- Scar management.  
- Oedema management.  
- Muscle patterning and activation of TT.  
- Functional advice. | - Scar management.  
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- Functional advice. |

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| - Mobilisation of all joints not in splint.  
  - In dynamic splint:  
    - active digit flexion  
    - active MCPjt flexion with IPjts in extension (intrinsic positive position)  
    - If joint stiffness, gentle passive IPjt flexion with MCPjts in 0° extension (intrinsic minus position). | - Active ROM and initiation of TT out of splint.  
- Grasp and release exercises utilising splint if required.  
  - In dynamic splint:  
    - active digit flexion.  
    - active MCPjt flexion with IPjts in extension (intrinsic positive position).  
    - If joint stiffness, gentle passive IPjt flexion with MCPjts in 0° extension (intrinsic minus position). | - Active ROM and initiation/training of TT.  
- Grasp and release exercises with graded loading.  
- Full passive ROM exercises. | - Full active and passive ROM exercises.  
- Loaded grasp and release exercises. |

<table>
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| - No functional use of hand.  
- No passive flexion of MCPjts.  
- No passive finger flexion into a fist.  
- No active/passive wrist flexion.  
- Wound integrity/Soft tissue condition  
  - Consider positioning of proximal upper limb to avoid overstretching of transfer. | - Light function¹ only (both in and out of splint).  
- No active or passive gross composite flexion of wrist and digits together.  
- Wound integrity/Soft tissue condition.  
  - Consider positioning of proximal upper limb to avoid overstretching of transfer. | - No heavy² activities. | - No functional restrictions. |

¹ Light function: Minimal use of the hand.  
² Heavy activities: Activities that involve significant weight or force.  
³ Functional only: Use of the hand for functional activities.  
⁴ Full active and passive ROM: Range of motion exercises that involve full movement of the joints.
¹ Examples of light activities: using the telephone, handling money; holding a newspaper, shaving

² Examples of heavy activities: sports, lifting children, ironing, making a bed, gardening, lifting a full kettle.

Telephone numbers:
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**Secretaries:**
Dr Sinisi 020 8909 5567
Mr Fox 020 8909 5331
Mr Quick 020 8909 5447

<table>
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<tr>
<th>Possible complications</th>
<th>Symptoms</th>
<th>Action</th>
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<tbody>
<tr>
<td>Infection</td>
<td>Pain, fever, redness, wound oozing, rash, itching, general feeling of malaise.</td>
<td>Contact RNOH CNS, surgical team +/- GP.</td>
</tr>
<tr>
<td>Tendon rupture</td>
<td>Sudden snapping/’pinging’ sensation in hand or loss of prior movement of digits or wrist</td>
<td>Contact RNOH CNS, surgical team +/- GP.</td>
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<tr>
<td>Co-contraction /Muscle patterning</td>
<td>Activation of both agonist and antagonist muscle groups preventing movement through range. Abnormal movement patterning.</td>
<td>Discuss with RNOH surgical team +/- therapy team at next routine appointment</td>
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