Webinar series
Return to Work Barrier Series: Management of Hand Injuries

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Webinar Presenters

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Amanda Mackillop graduated from the University of Queensland with a Bachelor of Occupational Therapy in 2007. She has practiced full time in hand therapy since 2010. She is an associate member, and a Queensland divisional representative of the Australian Hand Therapy Association. Amanda has a keen interest in rehabilitation of the hand and upper limb.
Return to Work Barrier Series:
Common Work Related Hand Conditions

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Welcome

- Introductions
- Qld Workers Compensation Scheme hand injury statistics 2014-2015
  - Top 5 common work related hand injuries
  - Medical considerations – causes, healing timeframes, injury pathomechanics
  - Rehabilitation (hand therapy) – what is involved, frequency, timeframes
  - RTW considerations/barriers
- Questions
- Quiz
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QLD Workers Compensation Scheme

Crush Injuries (842)

Carpal Tunnel Syndrome (258)

Extensor Tendon Injury (180)

De Quervain’s Tenosynovitis (110)

Finger Digital Nerve Repair (96)
RTW Barriers/Considerations

• Not ‘one size fits all’ ... everyone is different!
• No 2 injuries or conditions behave the same way
• Duration and severity of injury influences outcome
• Individual factors – genetics, coping styles, pain tolerance, participation in rehab
• Workplace culture, employer support
• Availability and suitability of light duties
Crush injuries

#1 QLD Workers Compensation Scheme 2014-2015

- 842 claims
- 98% RTW rate
- 140.17 average Total Impairment (TI) days lost
- 68.90 average Partial Impairment (PI) days lost
Crush injuries

• Crushed under pallets or boxes
• Between trucks and loading docks
• Any heavy manual task
• Detipping – saw / blade injuries

• Loss of finger tip
• Often middle finger
• Injury to nail / nail bed
• Sometimes major hand injury
Crush injuries

Hand Therapy

- Commences within 1-3 days post op.
- Wound and oedema (swelling) management
- Range of Movement (ROM) exercises – affected and non-affected joints
- Splinting
  - protection
  - pain management
  - wound protection/ soft tissue preservation.
Crush injuries

Hand Therapy

• Reviewed 2 x week for first 2-4 weeks, until wound closure
• Then once weekly until 6 weeks
• Fortnightly up to 12 weeks (return of strength, comparable to unaffected)
Crush injuries

- Scar management
- Pain management
- Nerve desensitization
- Active/Passive exercises to regain movement
- Dynamic splinting for tissue lengthening
- Strengthening
Crush injuries

Splinting: Joint / tissue protection
Crush injuries

Splinting: Tissue lengthening
Crush injuries

RTW Considerations

*Typically,*

- Once wound closed, 2-4 weeks post op
- Dependent on soft tissue structures and +/- fracture
- Initially, avoiding lifting loads 1kg+ with the affected hand until doctor advises (tissue protection and pain management)
- Rest breaks
- Typically ok for light repetitive tasks, good for rehab and regaining range of movement (ROM)
- Gradual upgrade to normal duties and hours within 3 months
Crush injuries

RTW Considerations

Aggravators:
• Gripping/lifting tasks
• Pinching tasks
• Fine motor/dexterity tasks
Carpal tunnel syndrome

#2 QLD Workers Compensation Scheme 2014-2015

- 258 cases
- 95% RTW rate
- 60.93 average TI days lost
- 27.59 average PI days lost
Carpal tunnel syndrome

- Compression of the median nerve
- Under the transverse carpal ligament
- In space with 9 flexor tendons
Carpal tunnel syndrome

- Worse with age
- Worse at night
- Worse with driving
Carpal tunnel syndrome

• Sensory loss in median distribution
• Thenar wasting
Carpal tunnel syndrome

• Tinel’s sign
• Phalen’s sign
• Reverse Phalen’s sign
• Carpal compression test
Carpal tunnel syndrome

- Nerve conduction studies
- False positive / False negatives
- Alternatives
Carpal tunnel syndrome

- Surgical release
- Open vs endoscopic
- Outcomes
Carpal tunnel syndrome

Hand Therapy

• Commences 1-3 days post op.
• Wound and oedema management
• Wrist and finger exercises
• Nerve gliding exercises
Carpal tunnel syndrome

• Reviewed 2 x weekly for first 2 weeks, until wound closed
• Then once weekly until 6 weeks.
• Scar management
• Stress loading program
• Strengthening
Carpal tunnel syndrome

Recovery considerations

• Length of symptoms pre-operative can impact on recovery of nerve

• Paraesthesia (numbness/tingling/pins & needles) & scar tenderness are common in sub-acute recovery phase

• Need to allow nerve time to recover. Paraesthesia can be present for up to 12 weeks following surgery

• Development of pillar pain (tenderness adjacent to the actual ligament release)

• Ongoing tenderness to pressure over the palm
Carpal tunnel syndrome

RTW Considerations

• Administrative/office based duties –

  *Typically,*

  • Return around 2 weeks post op
  • Gradual upgrade to normal duties and hours over 4 to 6 weeks.
  • Avoiding lifting loads 1kg+ with the affected hand until after 4 weeks.
Carpal tunnel syndrome

RTW Considerations

Aggravators:

• Static resting postures
• Poor endurance for repetitive tasks (i.e. typing)
• Gripping, lifting and carrying tasks
Carpal tunnel syndrome

RTW Considerations
• Heavier manual handling occupations
  * Typically,
    • Return on light duties at approximately 2-4 weeks
    • <2kg lifting limit initially, gradual upgrade to normal by 8-10 weeks
    • Considerations: bilateral vs unilateral, pain and healing, individual factors, type and availability of suitable duties.
    • Occupations/tasks involving vibration, working in confined spaces or at heights (requiring weight bearing through hands)
Extensor tendon injury

#3 QLD Workers Compensation Scheme 2014-2015

• 180 claims
• 98% RTW rate
• 33.29 average TI days lost
• 19.92 average PI days lost
Extensor tendon injury

- Mallet
- At PIP
- At MCP
- At hand or wrist
Mallet finger

• Mechanism of injury
• Usually direct blow on the end of the finger
Mallet finger

• Need to establish if “bony” or “tendon” mallet injury
• +/- oedema/tenderness at DIP joint
• Please xray every mallet
Mallet finger

Conservative management

Full time splint, full DIP joint extension
• 6 weeks bony avulsion
• 8 weeks tendon avulsion
• ‘At risk’ and overnight for further 4 weeks
Mallet finger

• DIP joint appropriately supported
• No room to move
• PIP joint free
Mallet finger

Operative management

• Indications
  • painful bony non-union
  • Unacceptable deformity
Mallet finger

- Bony – ORIF fragment
- Hook plate
Mallet finger

• Tendon – reattach extensor
• Bony anchor / suture
Tendon lacerations

- Surgical repair
- Splint
- Controlled exercise
Extensor tendon injury

Hand Therapy

• Commences 1-3 days post-op
• Wound and oedema care
• Splinting to protect tendon repair
  • Mallet finger:
    6 weeks full time
    8 weeks full time (mallet finger)
    At risk for a further 2 weeks
• 2 x review per week for wound, oedema, splint fit, ROM upgrades
Extensor tendon injury

Injury at the level of the fingertip (mallet):

Weeks 0-6/8
Extensor tendon injury

Injury at level of the mid finger:

Weeks 0-4

1 resting splint

Weeks 5-6

2 exercise splints
Extensor tendon injury

Injury at the level of the hand:

- Weeks 0-4
- Weeks 5-6
Extensor tendon injury

RTW Considerations

• Finger laceration:
  
  * Typically, 
    * RTW on light duties 
    * Nil hand use whilst in splint - first 6 weeks 
    * OK for supervisory or admin/office based duties early on (wound closed, pain under control) 
    * Initially, <1kg lifting limit, until doctor advises 
    * Gradual upgrade to normal duties and hours within 3 months 
    * Consider initial time away from work & overall deconditioning → risk of postural related soft tissue injury 

• Risk factors: 
  * Resisted finger straightening (extension) 
  * Forceful/tight gripping 
  * ‘fighting the splint’
Extensor tendon injury

RTW Considerations

• Wrist or hand laceration:
  
  * Typically,
  
  • Nil hand use whilst in wrist splint – first 4 weeks
  • Dr may permit RTW at 4 weeks when in hand based splint only
  • OK for supervisory or admin/office based duties early on (wound closed, pain under control)
  • Initially, <1kg lifting limit, until dr advises
  • Gradual upgrade to normal duties and hours within 3 months
  • Consider initial time away from work & overall deconditioning → risk of postural related soft tissue injury

• Risk factors:
  • Resisted finger/wrist extension
De Quervain’s tenosynovitis

#4 QLD Workers Compensation Scheme 2014-2015

• 110 claims
• 92% RTW rate
• 28.64 average TI days lost
• 14.30 average PI days lost
De Quervain’s tenosynovitis

- Stenosing tenovaginitis
- Abductor pollicis longus tendon
- Usually up to 3 tendons in sheath
- Affects meat workers, welders, young mums
De Quervain’s tenosynovitis

Assessment
• Finklestein’s test

Conservative management
• Splint – 6 weeks
• NSAIDs
• Steroid injection to sheath
De Quervain’s tenosynovitis

- Surgical release
- Under LA and sedation
- Make sure release all 3 tendons
- Risk to radial cutaneous nerve
- Can cause painful neuroma
De Quervain’s tenosynovitis

Hand Therapy

• Commences within 3-5 days post op
• Wound and oedema management
• Early active ROM
• 2 x appointments first 2-4 weeks
• Once weekly until 6-8 weeks

• Scar management and desensitisation
• Avoidance of provocative tasks 4-6 weeks
• Wrist strengthening 6+ weeks
De Quervain’s tenosynovitis

RTW Considerations

• Administrative/office based duties –
  
  *Typically*,
  
  • Return around 2 weeks post op
  • Gradual upgrade to normal duties and hours over 4 to 6 weeks.
  • Avoiding lifting loads 1kg+ with the affected hand until after 4 weeks.
De Quervain’s tenosynovitis

RTW Considerations

Aggravators:

- Poor mousing and typing posture - cause of injury
- Repetitive mousing and typing
- Gripping, lifting and carrying tasks
De Quervain’s tenosynovitis

RTW Considerations

• Heavier manual handling occupations

  Typically,
  • Return on light duties at approximately 2-4 weeks
  • <2kg lifting limit initially, gradual upgrade to normal by 8-10 weeks
  • Considerations: bilateral vs unilateral, pain and healing, individual factors, type and availability of suitable duties.
De Quervain’s tenosynovitis

RTW Considerations

Aggravators:

• Repetitive pinching
• Repetitive wrist deviation
Digital nerve repair

#5 QLD Workers Compensation Scheme 2014-2015

• 96 claims
• 95% RTW rate
• 18.03 average TI days lost
• 10.88 average PI days lost
Digital nerve injury
Digital nerve repair

- Patients will describe their finger as feeling numb
- Or pins and needles
- Any cut on palmar surface with change in sensation
- NEEDS Surgical exploration
- Microsurgical repair – put nerve ends together
- Nerve still has to grow back – 1mm per day
Digital nerve repair

Hand Therapy

• Commences 1-3 days post op
• Splinting for nerve repair protection
  • Full time 3 weeks
  • ‘At-risk’ for a further 2 weeks
• Wound and oedema management
• Early AROM within splint
• 2 x appointments first 2-4 weeks
Digital nerve repair

Hand Therapy

• Once weekly until 6-8 weeks
• Scar management and desensitisation
• Graduated strengthening 6+ weeks
Digital nerve repair

RTW Considerations

• Administrative/office based duties –
  
  Typically,
  
  • Return after 3 weeks (out of splint)
  • Gradual upgrade to normal duties and hours over 6 weeks.
  • Avoiding lifting loads 1kg+ with the affected hand until after 6 weeks.

• Aggravators:
  
  • Gripping, lifting and carrying tasks
Digital nerve repair

RTW Considerations

• Heavier manual handling occupations

  Typically,
  • Return on light duties at approximately 4 weeks
  • Supervisory, one handed duties after 2 weeks
  • <1kg lifting limit initially, gradual upgrade to normal by 8-10 weeks
  • Considerations: nerve pain and healing, individual factors, type and availability of suitable duties.

• Aggravators:
  • Gripping and lifting/carrying tasks
  • Vibration
Digital nerve repair

Tracking nerve repair: Sensory mapping charts

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Outcomes

• Stable and stationary
• Permanent impairment assessment
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Quiz
Question 1

Identify the types of tasks a worker recovering from de Quervain’s tenosynovitis should avoid/minimize when returning to work?
Answer:

• Repetitive wrist deviation tasks
• Repetitive thumb movements
• Repetitive pinching
• Correcting poor mousing and typing posture
Question 2

What is the *typical* duration a worker with an extensor tendon injury will be required to wear a splint, and therefore be unable to use the affected hand at work?
Answer:

• 6 weeks
• 8 weeks (tendinous mallet finger)
Question 3

Name some tasks that would typically aggravate a person with carpal tunnel, and should therefore be minimized/avoided with return to work?
Answer:

• Static resting pressure at the heel of palm (e.g. typing)
• Vibration
• Working in confined spaces, or at height (weight bearing through the hands)
• Forceful/tight gripping
Question 4

Identify the duration of time in which a person recovering from carpal tunnel release can experience paraesthesia (i.e. nerve pain) after surgery?
Answer:

Up to 3 months/12 weeks.
Thank you for attending.