Occupational therapy guidelines for conditions in which the metacarpophalangeal joints could be splinted in extension

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Make today matter

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Lefapha la Disaense tša Maphelo

Introduction

- MP joints should always be splinted in flexion to prevent stiffness
  - Anatomical structure of the MP joint

- Certain conditions require splinting in extension
  - Limited literature
  - Literature is vague

Aim

- Guidelines serve as a link between evidence-based research and clinical practice
  - No guidelines available

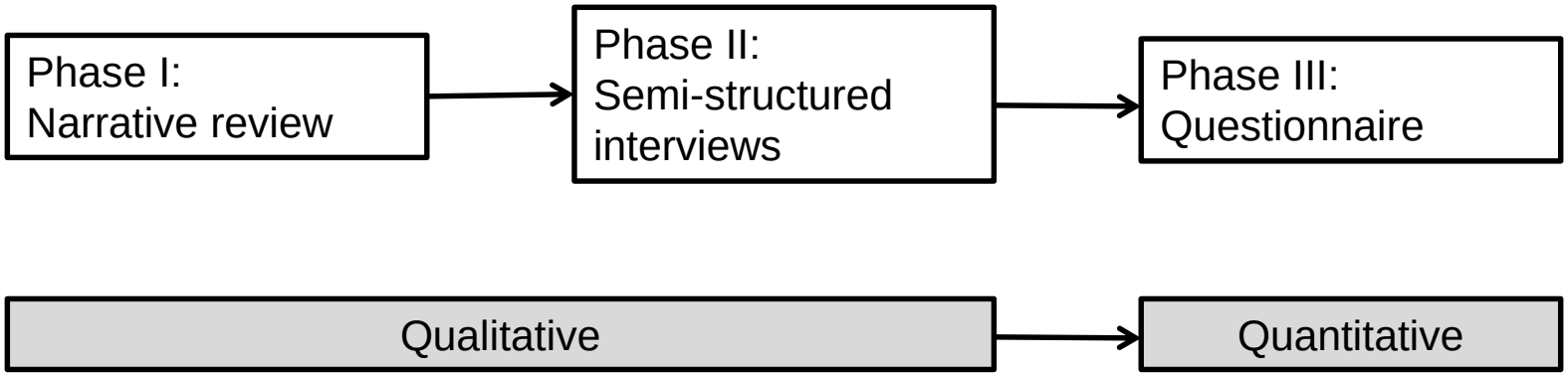
- Development of OT guidelines for conditions in which the MP joints could be splinted in extension:
  - Splinting options
  - Wearing schedules
  - Therapy to complement splinting

Methods

- Exploratory sequential mixed methods research design was used in three phases
  - **Mixed Methods:** Collecting, analysing, and amalgamating qualitative and quantitative data in a single study
  - **Sequential:** Distinct phases
  - **Exploratory:** Qualitative data collected first, followed by quantitative

Methods

- Three phases:



Results: Conservative management of collateral ligament injuries of the MP joints

- **Phase I: Narrative review**
  - 1 037 scientific articles and 1 textbook were found
    - No articles met the inclusion criteria
    - 1 textbook met the inclusion criteria
      - English
      - 1 January 2005 to 31 December 2013
      - Full text
      - Peer-reviewed journals
      - Levels of evidence I, II or III
      - MP joints of digits two to five (index to little fingers)
      - Rehabilitation / therapy

Results: Conservative management of collateral ligament injuries of the MP joints

- **Phase I: Narrative review**
  - Splinting options
    - Hand-based static MP extension splint
  - Wearing schedule
    - Continuous wear of the splint during waking and sleeping hours
    - From week 3 the splint may be removed for exercise
  - Therapy to complement splinting
    - Active exercises of unaffected joints for the first three weeks
    - From week 6, passive exercises and progressive strengthening

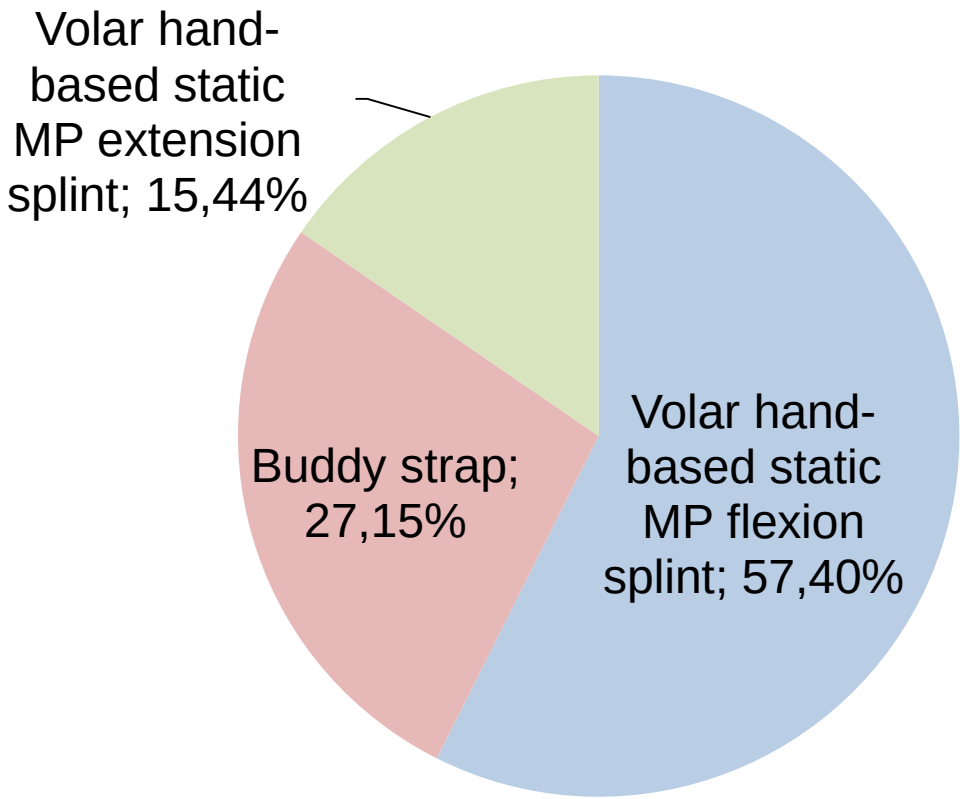
Results: Conservative management of collateral ligament injuries of the MP joints

- **Phase II: Semi-structured interviews:**
  - 9 interviews with occupational therapists and hand surgeons

	Splinting	Wearing schedule	Therapy to complement splinting
Participants 1, 2, 3, 4 and 6	Volar hand-based static MP extension splint	Wear the splint continuously during waking and sleeping hours for the first three weeks. Thereafter splint wear is gradually reduced depending on ligament integrity, pain and stability of the joint.	Active exercises within and / or without the splint for the first three weeks. Thereafter exercises gradually progress to allow more movement without the splint and strengthening.
Participant 8	Volar hand-based static MP flexion splint		Modalities to manage healing of tissue, oedema, scars and pain
Participant 2 and 8	Buddy strap	Wear the buddy strap continuously during waking and sleeping hours for the first three weeks.	Active exercises within and / or without the splint for the first three weeks. Thereafter exercises gradually progress to allow more movement without the splint and strengthening.

Results: Conservative management of collateral ligament injuries of the MP joints

- **Phase III: Questionnaire:**
  - 24 participants responded


Volar hand-based static MP extension splint; 15,44%
Buddy strap; 27,15%
Volar hand-based static MP flexion splint; 57,40%

OT guidelines

- Phase I + Phase II + Phase III = OT guidelines

OT guidelines website

Inflammatory phase

The inflammatory phase usually lasts between six and ten days from injury and is characterised by erythema (redness), oedema (swelling), warmth and frequently pain.

It is mostly advised to immobilise the injured hand in a static splint, which will allow the wound to rest and inflammation to settle.

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Fibroplasia phase

The fibroplasia phase directly follows the inflammatory phase and usually lasts four weeks after the injury. The wound is characterised by islands of red granulated tissue, that later contracts. The therapist should place the hand in a position to protect healing tissue.

Learn More

Scar maturation phase

The scar maturation phase follows the fibroplasia phase and can last up to two years after the injury. During this phase precaution should be taken not to cause tissue damage that will start the wound healing process anew.

Learn More

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Splinting

Only the MP joints of the affected and the adjacent finger (on the same side as the injury) need to be included in the splint. If an extensor lag is present, the MP joints could be splinted in more extension. A forearm-based splint could be used if indicated.

Joint positions within the splint:
MP joints: 10° - 40° flexion
IP joints: free

OT guidelines website

Wearing schedule

Consult the referring doctor on the severity of the injury and adapt the wearing schedule accordingly.

Waking hours: Wear the splint continuously.
Sleeping hours: Wear the splint continuously.

OT guidelines website

Therapy to complement splinting

All exercises should be graded. Repetitions and range of exercise should be guided by pain and other inflammatory responses to the exercise. Gradually increase the range but continuously assess the stability of the joint.

1. Active exercises in the splint
    1. Unaffected MP flexion and extension
    2. IP flexion and extension
    3. Wrist flexion and extension
2. Oedema management (choose one or more appropriate treatment modalities)
    1. Pressure garment
    2. Manual (o)edema mobilisation (MEM)
3. Scar management, once stitches have been removed and wound is completely healed (choose one or more appropriate treatment modalities)
    1. Scar massage
    2. Silicone sheet
    3. Vibration massage
4. Enhance tissue repair
    1. Ultrasound
    2. Pain management
    3. Pain relief creams
5. Education
    1. Wear and care of splint
    2. Exercises allowed as part of home programme
    3. Precautions

Conclusion

- **Limitations**
- **OT guidelines:**
  - Conservative and post-operative management of sagittal band injuries
  - Conservative management of collateral ligament injuries to the MP joint
  - Post-operative management of Dupuytren’s contracture release
  - Post-operative management of extensor tendon injuries of zones V to VII
  - Conservative and post-operative management of MP joint dislocations
  - Post-operative management of MP joint arthroplasties due to trauma and in Rheumatoid Arthritis
  - Conservative management of inflamed joints and ulnar drift in Rheumatoid Arthritis
  - Conservative management of stenosing tenosynovitis

Thank You

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