

# Functional Outcomes of Non-surgical Interventions in Adults with 5th Metacarpal Fractures: A Systematic Review

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## Condition

A 5th metacarpal fracture neck fractures or Boxer's fracture is a common fracture of the hand and is most common among the adolescent male population. Simple fractures typically have less surrounding tissue damage with many conservative treatment options available.

- The mechanism of injury is most likely direct blunt trauma to the hand with a closed fist caused by falls, punching, sports, etc.
- Symptoms include pain and tenderness.
- Signs include swelling, deformity, bruising, and reduced range of motion (ROM) and strength.
- Precautions include any strenuous activity that causes pain or joint misalignment

## OT Assessments/Special Tests

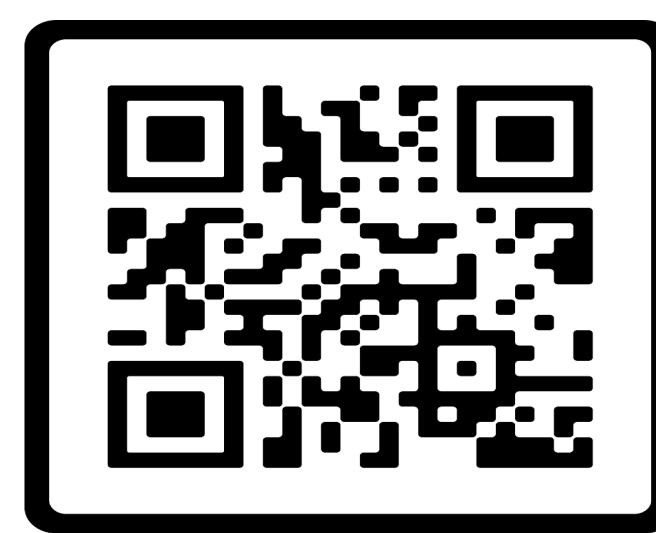
- **Dynamometry** assessing grip strength
- **Goniometry** assessing ROM
- **Visual Analogue Scale (VAS)** assessing pain

**Physical Agent Modalities (PAMs) indicated:** cold modalities in the acute phase to reduce inflammation

## Evidence-Based Interventions & HEP

- 5th Finger Flexion with Blocking
- MCP Flexion Stretch
- PIP Extension with MCP Flexion (for pinky finger)

More information included in the QR Code below.



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## Research Question

What non-surgical interventions affect the functional outcomes of 5th metacarpal fractures in adults?

## Method

- **Study Design:** Systematic review
- **Databases searched:** Google Scholar, EBSCO, EBSCOhost, PubMed
  - Conducted between May 6, 2024 and June 24, 2024
- **Inclusion Criteria:** Peer-reviewed articles
  - Published in English in the last ten years
- **Exclusion Criteria:** systematic reviews, meta-analyses, surgical approaches
- **Keywords:** (occupational therapy or occupational therapist or occupational therapists or ot) AND (boxer's fracture or boxer's fracture or 5th metacarpal fracture) AND (splint or orthosis or orthotic or brace or bracing or splinting or immobilize or immobilization) AND (healing time)

## Pictures or Figures



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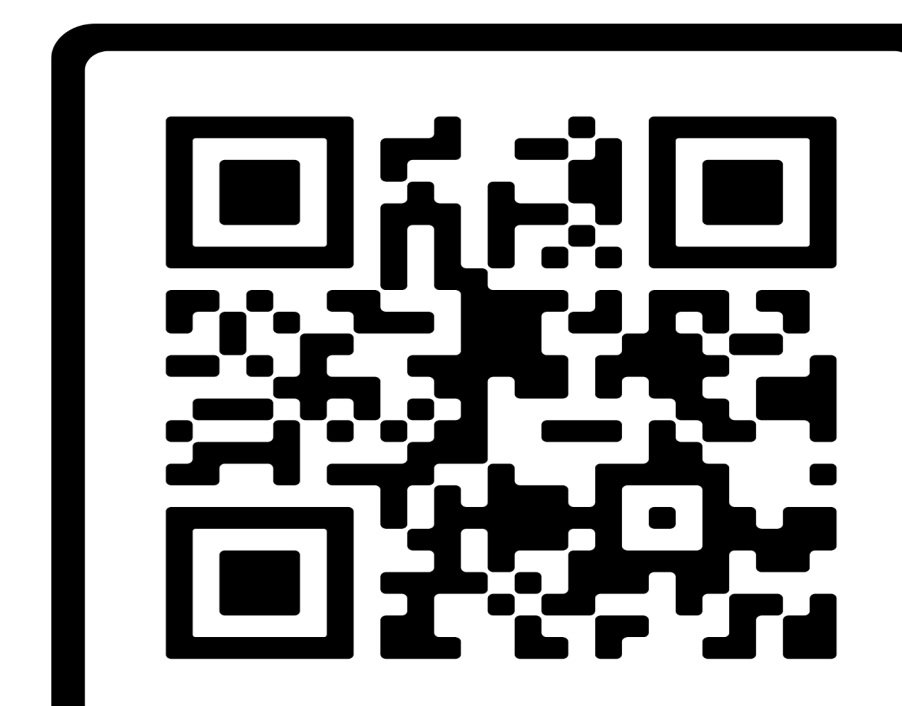
## Results

- The elastic bandage group scored 30% higher in grip strength than the splint group, in week 8 of 12 (Retrouvey et al., 2021).
- The dynamic metacarpal stabilization splint (DMSS) demonstrated improved early ROM and grip strength over the short-arm plaster splint (SAPS) (Yıldırımkaya et al., 2023).
- Hand-based thermoplastic splints resulted in improved early ROM and grip strength compared to traditional forearm-based ulnar gutter splints (Davison et al., 2015).
- Reduction and immobilization is not necessary in the treatment of uncomplicated fifth MCP fractures (Martínez-Catalán et al., 2015).
- The buddy taping group's pain was significantly lower than the ulnar cast group. It was suggested follow-up beyond week 3 is not necessary when buddy taping (Martínez-Catalán et al., 2020).

## Discussion & Implications for OT Practice

- Orthosis fabrication is not necessary for healing simple 5th metacarpal fractures.
- Conservative treatment, like buddy taping, is not inferior to surgery/casting and may be more effective.
- Mobilization is favored over immobilization.
- In many cases, no period of immobilization is recommended.
- **Practice implications:** earlier mobilization with better performance metrics could mean no hand therapy is required, allowing increased availability in clinician's schedules.
- **Education implications:** orthotic manufacturing within OT's scope
- **Research implications:** Continue with conservative treatment approaches applied across more diagnoses with greater complications

## References



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