

## UAMS Journal Club Summary

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Soft Wrap/Buddy Tape compared to conventional splinting for fifth metacarpal fractures

### Clinical Bottom Line

In patients presenting with uncomplicated boxer's fractures, as defined by <70 degrees angulation, no rotational component, not intraarticular, and closed, management with soft wrapping and buddy tap or buddy tapping alone showed non-inferiority when compared to the traditional splinting. Though requiring buy in from the orthopedist who will be seeing the patient for follow up, both studies showed a noninferior *quickdash* score at 4 months. Secondary outcomes of pain, satisfaction with esthetic appearance, ROM of 5<sup>th</sup> MCP joint or grip strength showed no statistically significant difference between the two treatment arms.

### PICO Question

P- Patients presenting to ED with uncomplicated 5<sup>th</sup> metacarpal fractures

I- Soft wrapping with buddy tapping and buddy tapping alone

C- Conventional splinting

O- Noninferiority as measured by *quickDASH* questionnaire

### Background

Fractures of the fifth metacarpal, also known as a boxer's fracture, are a common presentation to the emergency department. The traditional management of the uncomplicated forms of these fractures has been to place the patient in some form of an ulnar gutter splint followed by a cast for 6 weeks. However, this treatment modality has the potential of leading to complications from casting, loss of work secondary to the cast, as well as limitation's in ADL's as a result of the cast. Some groups have hinted at a more minimalist approach to the management of these patients with techniques such as buddy taping and less bulky splinting to reduce cost and through put times for the management of these patients.

### Trial 1

Pellatt R, Fomin I, Et Al *Is Buddy Taping as Effective as Plaster Immobilization for Adults With an Uncomplicated Neck of Fifth Metacarpal Fracture? A Randomized Controlled Trial*. *Annals of Emergency Medicine*, 74(1), 88-97

Pubmed link: <https://www.ncbi.nlm.nih.gov/pubmed/30853124>

Validity Rating: Moderate risk of bias due to crossover

The Basics:

-This randomized, nonblinded trial compared plaster casting with buddy taping in ED patients with a boxer's fracture. Primary outcome measure was hand function at 12 weeks, measured by the Shortened Disabilities of the Arm, Shoulder and Hand score.

#### Inclusion Criteria:

-Inclusion criteria consisted of patients presenting with an uncomplicated fifth metacarpal neck fracture between the age of 18-70. To be eligible two view plain films had to confirm fracture.

#### Exclusion Criteria:

-Exclusion criteria consisted of those with open fracture, gross rotational deformity, comminuted fracture, intra-articular fracture, associated tendon injury, polytrauma, fracture angulation greater than 70 degrees and injury older than 7 days.

#### Primary Outcomes:

-Hand function at 12 weeks as measured by the quickDASH questionnaire.

#### Secondary Outcomes:

-Measure of quickDASH, pain, satisfaction and EuroQol 5-dimension 3-Level score at 3, 6, 12 weeks following injury.

#### Results:

At 12 weeks the median quickDASH score for both treatment arms was zero(95% CI 0-0). Secondary outcome of work days missed showed a difference with buddy tape missing on average 0 days and traditional splint missing an average of two days. Patients showed no difference in pain, satisfaction or quality of life as measured by the EuroQol 5-dimension 3-Level score between the two groups. Additionally on average patients placed in the buddy tape arm had a shorter length of stay in the emergency department, by 36 minutes.

#### Limitations/Bias:

- Designed as a superiority study
- A large portion of patients who were eligible for participation in the study declined
- Grip strength was not included or measured
- In ability to blind the study given nature of question studied.
- Each treatment arm had cross over from other arm. However primary analysis was run as intention to treat.

#### Trial 2

Aaken et al.- *Fifth metacarpal neck fractures treated with soft wrap/buddy taping compared to reduction and casting: results of a prospective, multicenter, randomized trial.* Archives of Orthopaedic and Trauma Surgery. 136(10) 1481

Pubmed link: <https://www.ncbi.nlm.nih.gov/pubmed/26559192>

## The Basics:

This article was a noninferiority, prospective, randomized multicenter trial designed to determine if soft wrapping and buddy taping of an uncomplicated boxers' fracture was noninferior to the traditional treatment of reduction and casting. Primary outcome was a measured by a quickDASH score at 4 months and was deemed noninferior if less than a 10 point difference exist. Secondary outcomes of pain, satisfaction, time missed from work, and ROM at the MCP joint were measured as well as radiographic measurements.

Validity Rating: Moderate risk of bias due to crossover

## Inclusion Criteria:

-Skeletally mature patients with an acute (<7 days) isolated fracture of the 5<sup>th</sup> MC neck.

## Exclusion Criteria:

-Open fracture, rotational deformity, concomitant fractures of ipsilateral extremity, concomitant tendon injury, recurrent fracture, history of metabolic bone disease.

## Primary Outcomes:

- Subjective measurement using the quickDASH questionnaire score at 4 months

## Secondary Outcomes:

-Pain on a visual analog scale, Satisfaction concerning esthetic results, ROM of MCP joint, and callous formation via radiographs at 1 and 4 weeks

## Results:

68 patients were randomized to the two treatment groups with no statistical difference in age, fracture characteristics or age. No statistical difference could be found between the two groups quickDASH score at the 4 month interval. Secondary outcomes regarding pain, satisfaction with esthetic appearance or ROM testing showed no statistical difference between the two groups. However, patients randomized to the soft wrap and buddy taping had a statistical difference in time lost from work when compared to the casting group.

## Limitations/Bias:

- Unequal treatment groups with a higher number in the reduction with casting group dropping out of the study after enrollment
- Multiple patients crossed over between groups