

Submission: Presentation

Title: Describing the Epidemiology and Gender Differences in Phalangeal Fracture Patterns

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Purpose: Despite the relatively high incidence of phalangeal fractures, there is a limited understanding of the epidemiology and anatomical distribution of these fractures. We aim to describe the patient characteristics, anatomic distribution, and detailed fracture patterns of American adults sustaining phalangeal fractures.

Methods: A retrospective study was performed among patients with phalangeal fractures at two level I trauma centers in the United States (US) between January 2010 and January 2015. Included patients were ≥ 18 years old and had a diagnosis of a phalangeal fracture, while exclusion criteria were non-traumatic fractures, digital amputations proximal to the distal interphalangeal joint, and the absence of radiographs. A total of 2,140 phalangeal fractures in 1,747 patients were included and a manual chart review was performed to collect epidemiological and radiographic information. Fractures were classified based on location and fracture pattern.

Results: The median age at the time of injury was 45 years (interquartile range: 30-57), and 65% of patients were male. Males sustained a greater proportion of fractures at a younger age and females sustained a greater proportion at an older age. Males suffered sharp injuries, open fractures, and comminuted fractures more frequently than females ($p < 0.001$). The small finger had the highest incidence of fractures (26%), followed by the ring finger (24%). Distal and proximal phalanges demonstrated the highest incidence of fractures at 39% each. Shaft fractures were the most common (36%), followed by base fractures (32%), with volar and dorsal base fractures being twice as common as radial or ulnar base fractures. Oblique, transverse, and tuft fractures were the most common fracture types (19%). The dominant hand was affected in 44% of cases. Eighteen percent of fractures were due to a work-related traumatic mechanism, 47% of fractures were intraarticular, and the most common mechanism of injury was blunt trauma (46%).

Conclusions:

- This study provides an anatomical distribution of phalangeal fractures and the demographics of patients affected in an adult US population.

- The peak incidence of phalangeal fractures occurs at different ages in males and females.
- Males also sustained sharp injuries, open fractures, and comminuted fractures more frequently.

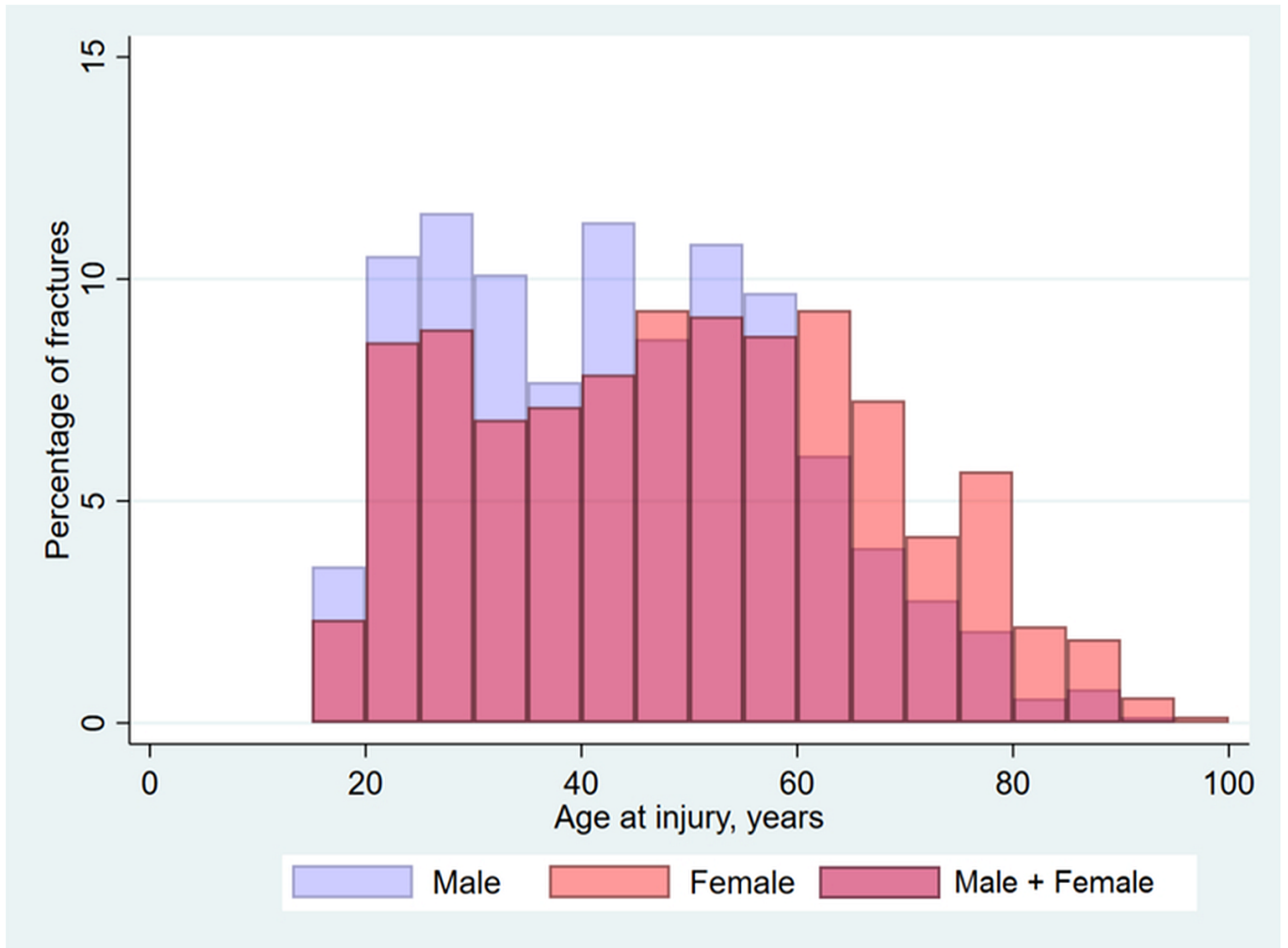


Figure 1 - The peak incidence of phalangeal fractures stratified by age and sex

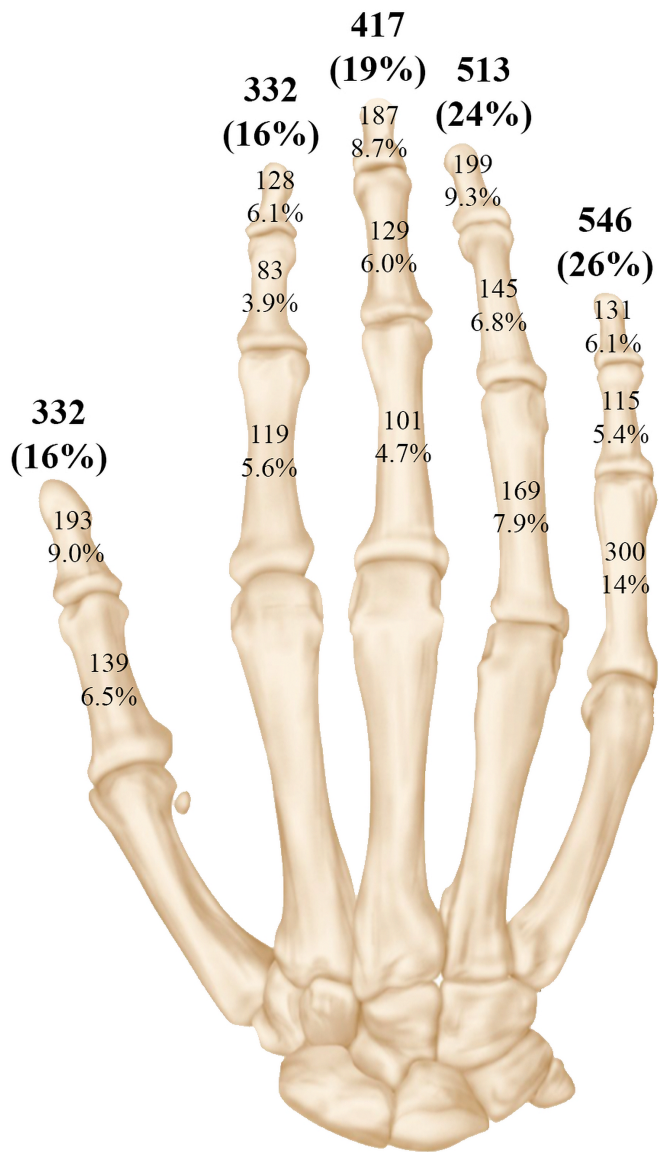


Figure 2 - The distribution of phalangeal fractures among US adults stratified by phalanx