

# **Trends in Pickleball-Related Fractures in the United States: An Analysis of the 2002-2022 National Electronic Injury Surveillance System Database**

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**INTRODUCTION:** Pickleball is one of the fastest-growing sports in America. The purpose of this project is to 1) determine the prevalence and trends of pickleball-related fractures evaluated in emergency departments in the United States from 2002-2022 and 2) determine demographic variables associated with fractures.

**METHODS:** This is a cross-sectional descriptive study using Consumer Product Safety and Commission's publicly available database, National Electronic Injury Surveillance System (NEISS), from 2002 to 2022. Analyses consisted of descriptive statistics, fracture trends, mechanisms, anatomic locations, gender distributions, and univariate analysis regarding disposition status.

**RESULTS:** During our study period, 397 fractures were identified. The average age of athletes who sustained pickleball fractures was 66.4 years old with a significant proportion of athletes over the age of 60 (87%,  $p < 0.001$ ). More females (69%) presented to the ED with fractures than males (31%). Throughout our study, there was a 90-fold increase in fractures with a noticeable surge from 2020 onward, where fractures doubled (Figure 1). The winter months (December-February) had significantly more fractures (36%) than Spring (26%), Summer (16%), or Fall (22%) ( $p < 0.001$ ). More patients followed up outpatient (81%) than were admitted (19%) ( $p < 0.001$ ). More patients sustained upper extremity fractures (66%) than lower extremity fractures (19%). The most common mechanism of fracture was from falls (92%). Concerning disposition status: age  $> 60$ , male gender, and injuries to the trunk and lower extremities all had significantly increased odds of being admitted with values of 2.27, 2.31, 2.89, and 13.8, respectively.

**DISCUSSION AND CONCLUSION:** As the sport of pickleball gains popularity, fractures have skyrocketed with a 90-fold increase during our study period. The fractures most commonly observed were of the upper extremity in women aged 65+ following a fall, reflecting the bone health of this postmenopausal population. Despite the female predominance in fractures, men were 2.3 times more likely to be admitted for fracture, which may be a consequence of the anatomic locations and subsequent severity of their fracture. Interestingly in men, there were significant age differences based on disposition status, which was not found in women. Further studies should investigate the association between gender-based aging and the severity of injury.