

## Auditing the Representation of Female Athletes in Sports Medicine Research: 5th Metatarsal Fractures

Peter Klug<sup>1</sup>; Jacob Adams<sup>1</sup>; Rachel Long<sup>2</sup>; Gordon Lents<sup>2</sup>; Ashely Herda<sup>3</sup>; Lisa Vopat<sup>2</sup>; Bryan Vopat<sup>2</sup>

<sup>1</sup>University of Kansas Medical Center School of Medicine, Kansas City, KS, <sup>2</sup> University of Kansas Medical Center Department of Orthopedic Surgery and Sports Medicine, Kansas City, KS, <sup>3</sup> University of Kansas Medical Center School of Education and Human Sciences, Kansas City, KS  
pklug@kumc.edu

**Disclosures:** P. Klug: None. J. Adams: None. R. Long: None. G. Lents: None. A. Herda: None. L. Vopat: None. B. Vopat: None.

**ABSTRACT INTRODUCTION:** While female representation within athletics has increased as a result of rising popularity, the demand of equal compensation, and greater participation in multiple sports than ever before, overall, equality in sports medicine research falls flat. Fifth metatarsal fracture is the most common foot fracture and is worrisome in athletes of all ages, particularly females. The purpose of this project was to systematically review the primary literature available on 5th metatarsal fractures and assess the representation of female athletes in the current literature based on a standardized protocol.

**METHODS:** This was a systematic audit of the available literature regarding fifth metatarsal fractures by a standardized protocol published by Smith et al. in 2022. Primary factors identified and analyzed included: study population, athletic caliber, menstrual status, research theme, sample of males and females, journal impact factor, and paper altmetric score.

**RESULTS SECTION:** Thirty articles met inclusion criteria for this audit. A total of 472 5th metatarsal fractures were identified with 373 (79%) of fractures studied occurring in males and 226 (27%) in females. The majority of studies (18/30, 60%) were mixed cohort followed by 10 male only studies (33.33%), one female only study (3.33%) and one male vs female study (3.33%). Out of 831 total participants in the 18 mixed cohort studies, 605 (72.8%) were male while 226 (27%) were female. All 18 mixed sex cohort studies investigated health outcomes. While male only studies evaluated health outcomes as well as performance metrics, there were no studies investigating female performance outcomes. The one female only study investigated health outcomes and was the only study in the audit to account for menstrual status.

**DISCUSSION:** Females are not adequately represented in research regarding 5th metatarsal fractures. Future research should focus on increasing female-only studies, inclusion of menstrual status in study design and evaluating performance outcomes in the setting of a 5th metatarsal fracture.

**SIGNIFICANCE/CLINICAL RELEVANCE:** Fifth metatarsal base fractures are a common injury in athletes regardless of sex/gender but there may be an under representation of female athletes in recent studies. This research helps to identify critical gaps in the current body of literature regarding fifth metatarsal base fractures.

**REFERENCES:** n/a

**ACKNOWLEDGEMENTS:** n/a