

Assessing the Influence of Researcher Sex on Patient Inclusion in Sports Medicine Studies: A Systematic Review

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INTRODUCTION:

Patient demographics such as age, race, ethnicity, and sex are known to affect patient health outcomes through a combination of biological and social factors. Historically, many studies on athletes have focused on male athletes and subsequently generalized to females. Therefore, this systematic review will evaluate the frequency of evaluating male and female athletes among investigators of both sexes, which may improve reporting of female athletes and the external validity of study findings.

METHODS: The present study used the same literature search as our prior work (Sonnier et al., 2022). In brief, original research articles published in the three journals of the American Orthopaedic Society for Sports Medicine (American Journal of Sports Medicine, Orthopaedic Journal of Sports Medicine, and Sports Health) were screened for inclusion. Original studies that isolated athletes were included. The sex of each author and the total number of authors were collected to calculate the number and percentage of female authors. Determination of author sex was completed using the name-to-gender assignment algorithm Generize.io, with manual confirmation of author sex for any non-unisex names.

RESULTS: Overall, 554 studies were included for analysis. There were 413 studies (74.5%) with a male first author and 141 studies (25.5%) with a female first author. The sex of first-authors significantly affected the study population assessed ($p < 0.001$). Female first-authors isolated male and female athletes at similar rates (17% vs. 17.7%) but were 2.9x more likely to isolate female athletes than male first-authors (17.7% vs. 6.1%, $p < 0.001$). There were 449 studies (81.2%) with a male senior author and 104 studies (18.8%) with a female senior author. Sex of the senior-author did not affect the rate at which studies isolated either male or female athletes ($p = 0.463$). In studies that isolated female athletes, the rate of female first-authorship was double the overall rate (50.0% vs. 25.5%). The proportion of studies with a female senior author (24.0% vs. 18.8%) also exceeded what was seen in the full cohort.

DISCUSSION AND CONCLUSION: Female first authors are significantly more likely to perform research isolating female athletes. While improving the frequency of female athlete research is multifactorial, promoting female researchers in the field of sports medicine may help increase the volume of literature on female athletes.

	Female N=141	Male N=413	P Value
Report Sex:	137 (97.2%)	393 (95.2%)	0.441
Analyze Sex:	60 (42.6%)	130 (31.6%)	0.023

Table 2c. Rates of reporting and analyzing demographics by male vs. female first-authors. Significant values in bold.

	Female First-Author N=141	Male First-Author N=413	P Value
Senior Author Sex:			<0.001
Female	41 (29.1%)	63 (15.3%)	
Male	100 (70.9%)	349 (84.7%)	
Proportion Female Author Study Population:	0.42 (0.21)	0.16 (0.17)	<0.001
All Female	25 (17.7%)	25 (6.05%)	
All Male	24 (17.0%)	119 (28.8%)	
Both	92 (65.2%)	269 (65.1%)	
Journal:			0.654
AJSM	47 (33.3%)	127 (30.8%)	
OJSM	73 (51.8%)	232 (56.2%)	
Sports Health	21 (14.9%)	54 (13.1%)	
Year:			0.862
2017	25 (17.7%)	80 (19.4%)	
2018	30 (21.3%)	79 (19.1%)	
2019	27 (19.1%)	68 (16.5%)	
2020	23 (16.3%)	79 (19.1%)	
2021	36 (25.5%)	107 (25.9%)	

Table 2a. Characteristics of studies with male vs. female first-author. Significant values in bold. AJSM=American Journal of Sports Medicine. OJSM = Orthopedic Journal of Sports Medicine.

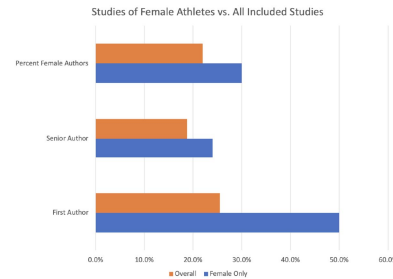


Figure 1. Sub-analysis comparing studies that isolated female athletes to the full cohort.