

Gender Disparities Among Professional Team Sports Medicine Physicians

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Abstract

Objective: Although recent trends from the Accreditation Council for Graduate Medical Education (ACGME) present encouraging growth of female representation in sports medicine, the field is still lagging behind other specialties. This study investigates gender disparities among physicians providing care for professional sports teams in male and female sports leagues. **Design:** Information regarding physicians providing sports medicine care to professional teams obtained by database queries (May 2021). Chi-square analysis compared gender data of orthopaedic team physicians with American Orthopaedic Society for Sports Medicine (AOSSM) and American Academy of Orthopaedic Surgeons (AAOS) membership, residency, and fellowship census data. Primary care sports medicine physicians were compared with American Medical Society for Sports Medicine (AMSSM) and primary-care sports medicine fellowship census data. **Setting:** Professional sports health care. **Study Population:** Professional league physicians. **Interventions:** None. **Main Outcome Measures:** Gender, residency, and fellowship training of professional league physicians. **Results:** Among a total of 608 team physicians, 572 (93.5%) were male and 40 (6.5%) were female. Orthopedic surgeons comprised 64.7% of the physicians. Fourteen (3.6%) team orthopedic surgeons were female. Thirty-five percent of team physicians were primary care sports medicine physicians. Twenty-six primary care sports medicine physicians (11.6%) were female. Orthopaedic female team physician representation overall was comparable with AOSSM and AAOS membership but significantly less than orthopaedic surgery residents and sports medicine fellows ($P < 0.01$). Women's National Basketball Association orthopaedic team physicians were more represented than female membership among AOSSM, AAOS, and orthopaedic sports medicine fellows ($P < 0.01$). Except for the WNBA, Premiere Hockey Federation, National Women's Soccer League, and United States Football League, female primary care sports medicine physicians were underrepresented in professional sports compared with AMSSM membership and primary care sports fellows ($P < 0.01$). **Conclusion:** Overall, female representation is poor among orthopaedic surgeons and primary care physicians providing sports medicine care to professional teams. Leagues encompassing female athletes tend to have better representation of female physicians. **Level of Evidence:** IV.

Key Words: team physician, professional athletes, orthopaedic surgery, sports medicine, primary care sports medicine, gender disparity

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INTRODUCTION

Equitable gender representation in orthopaedic surgery remains an issue. However, the proportion of women in orthopedic residency programs has increased in recent years, growing from 10.9% to 16.7% (2006–2021).¹ The rate of female physician recruitment to orthopedic and sports medicine training has not

yet matched other male-dominated surgical specialties, such as urology, neurologic and thoracic surgery. Orthopedics and sports medicine are currently the most male-dominated medical fields, with males accounting for 94.2% of practicing orthopedic surgeons and 93.1% of primary care sports medicine physicians.² Primary care sports medicine has experienced similar 85 incremental growth in representation of women, from 15% in 2007 to 27% in 2019.² Although factors contributing to continued gender disparity are likely multifaceted, numerous studies identify female mentorship as particularly influential in the recruitment of women to orthopaedics.^{1,3,4}

Discussions on facilitating gender equity within professional sports have occurred at both the levels of professional athletes and team governance.^{5–7} Recent studies have examined the representation of women in the team physician setting, within the National Football League (NFL), Major League Baseball (MLB), National Basketball Association (NBA), Women's NBA (WNBA), and National Collegiate Athletic Association compared with the general population and AOSSM.^{8,9} These studies highlight the disparity in female representation and call for a better understanding of barriers to entry. However, to date, most studies have been limited to

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just a few leagues. No study has examined female representation in sports medicine across a wide variety of professional sports leagues.

The purpose of this paper was to evaluate gender distribution of sports medicine physicians providing care to professional sports teams. A secondary goal was to see if this distribution was different among female professional sports teams. We hypothesize that females hold significantly fewer surgical and primary care sports medicine team physician roles across professional sports teams compared with census data for each respective subspecialty. In addition, we expected less gender disparity among team physicians of female professional sports leagues.

METHODS

Study Design

This study was a retrospective, cross-sectional database study.

Data Collection

Information regarding physicians providing sports medicine care to teams in the MLB, National FastPitchNFP, National Hockey League (NHL), Professional Hockey Federation (PHF), NBA, WNBA, Major league Soccer (MLS), National Women's Soccer League (NWSL), United Soccer League (USL), NFL, and United States Football League (USFL) were obtained from athletic trainers as well as team websites and search engine queries. Gender, residency, and fellowship training specialization were recorded. Institutional Review Board exemption was obtained (IRB-300009634).

Population data for practicing orthopedic surgeons was obtained using the American Academy of Orthopaedic Surgeons (AAOS) membership census.¹⁰ Orthopedic surgery residency and surgical sports medicine fellowship data were obtained from the 2021 ACGME Data Resource Book.¹¹ Census data for fellowship trained primary care sports medicine physicians were obtained from the American Medical Society for Sports Medicine (AMSSM) 2021 annual report.¹² Census data on primary care sports medicine fellows were obtained from the 2021 ACGME Data Resource Book.¹¹

Data Analysis

Orthopedic surgeons and primary care sports medicine physicians were included in data analysis. All other specialties, such as internal medicine-trained physicians without sports medicine fellowship, general surgeons, dentists, chiropractors, and ophthalmologists, were excluded. Remotely located team physicians, such as consulting physicians or off-season training camp medical personnel, were also excluded.

A χ^2 test was used to compare the proportion of female physicians in professional leagues with professional societies and residency and fellowship programs.

RESULTS

Of 608 team physicians across 206 teams, 572 (93.5%) were male and 40 (6.5%) were female.

Surgical Orthopedics and Sports Medicine

Orthopedic surgeons accounted for 65.7% of team physicians (N = 402), of which 14 (3.5%) were female (Table 1). Compared with currently practicing orthopedic surgeons, the proportion of female orthopedic team physicians was less than female representation in AOSSM and AAOS (6.5%, $P < 0.001$; and 5.9%, $P < 0.001$) (Table 1). Furthermore, female team physician representation was significantly lower than that of current orthopedic surgery residents and surgical sports medicine fellows (16.8%, $P < 0.001$; and 10.5% $P < 0.01$) (Table 1). The proportion of female orthopedic team physicians in women's professional leagues was comparable with AOSSM and AAOS in all women's professional leagues ($P > 0.1$) (Table 1, Table 2). Conversely, female representation in men's professional leagues was significantly lower ($P < 0.01$).

Primary Care Sports Medicine

Primary care sports medicine physicians comprised 36.2% of team physicians (N = 222), of which 26 (11.7%) were female. This distribution is significantly less ($P < 0.01$) than both the female membership of AMSSM (30.4%) and that of current primary care sports medicine fellows (32.8%) (Table 2). For individual leagues, female team physicians were less represented in the NBA, NFL, MLB, MLS, USL, and NHL compared with the AMSSM and primary sports medicine fellows. By contrast, the PHF, WNBA, USFL, and NWSL were comparable with AMSSM and fellowship female distribution (Table 3).

DISCUSSION

In the current study, we demonstrated significant gender disparities among physicians caring for teams in men's professional sports leagues among both orthopedic surgeons and primary care sports physicians. However, we noted that the representation of female team physicians in women's professional sports leagues was more consistent with professional medical membership and ACGME data.

The fields of orthopedic surgery and sports medicine continue to strive for equal opportunity and representation for both men and women. Over the past 10 years, data from the ACGME indicate a 3% rise in women in orthopedic surgery residency programs.¹¹ Despite growth, female presence in orthopedics is still underwhelming in comparison with all other surgical specialties during the same period. This gender gap grows even more in the context of professional sports. Primary care sports medicine has seen a growth in female membership and training, but this increase is not reflected in the care of professional athletes.

Two previous studies have evaluated gender distribution among team physicians. Hinkle et al demonstrated that for professional basketball (NBA and WNBA) team physicians, only 7% were female, but the proportion was more favorable in the WNBA.⁵ O'Reilly et al⁹ evaluated gender distribution among team physicians for select collegiate conferences and professional organization including the MLB, NFL, NBA, and WNBA. They found that females represented 12.7% of all team physicians and 6.8% of all orthopedic surgeons. These data are comparable with our findings in that females comprised 6.5% of all team physicians and 5.8% of orthopedic surgeons.^{10,12} Previous studies have focused on a

TABLE 1. Gender Distribution of Orthopedic Surgeons in Professional Sports Leagues Compared with That of Professional Medical Organizations and Training, as of May 2021

Orthopedic Surgeon Team Physicians				AAOS Members	Orthopedic Surgery Residents	AOSSM	Surgical SM Fellows
League	Male	Female	Total				
MLB	65	3	68		*		
NFP	0	0	0		—	—	—
NHL	60	1	61		**		
PHF	4	1	5				
NBA	54	1	55		**		
WNBA	12	2	14				
MLS	38	2	40		.		.
NWSL	9	2	11				
USL	26	0	26		*		
USFL	8	0	8				
NFL	100	2	102		***	.	*
Total	376	14	390	***	***	***	***

*Right pane indicates statistical differences from gender proportions of training programs and associations: P < 0.1. *P < 0.05 **P < 0.01 ***P < 0.001.*

few prominent sports leagues and organizations. Our study takes a more comprehensive look at professional sports leagues with a larger number of female professional sports leagues included.

The individual gender distributions of professional women’s team physicians were comparable with that of national orthopedic and sports medicine organizations and training programs. This would suggest that institutional processes exist among professional female sports teams for the hiring and recruitment of qualified physicians in proportion with the gender distribution of training programs and professional societies. Another explanation is that the culture of female leagues may allow for female physicians to feel more comfortable in pursuing such roles.

Our study design did not allow us to examine causative factors contributing to the gap in gender representation. Stern

et al¹³ indicated that the representation of women in professional sports medicine decreased with increasing age brackets. There is a greater frequency of younger female sports medicine-trained team physicians for high-school sports.⁹ This suggests a cohort effect of females in team physician roles. It is possible that older, more established senior male team physicians occupy roles in larger sports leagues, barring upward mobility of more junior physicians. It remains to be seen if the recent increases in females in sports medicine will translate to roles in professional sports leagues. Gerull et al¹⁴ postulate that the lack of upward mobility and academic recognition contribute to disparate physician representation. Tsukahara posits that disrespectful attitudes of male athletes and female physicians having their judgement questioned more often contribute to the gender disparity among sports physicians.¹⁵ Furthermore, based on the increased relative

TABLE 2. Gender Distribution of Primary Care Sports Medicine Physicians in Professional Sports Leagues Compared with That of Professional Medical Organizations and Training, as of May 2021

League	Nonsurgical Team Physicians			AMSSM	Nonoperative Sm Fellows
	Male	Female	Total		
MLB	40	4	44	**	**
NFP	2	0	2		
NHL	26	2	28	*	**
PHF	4	2	6		
NBA	29	3	32	*	*
WNBA	10	7	17		
MLS	10	0	10	.	.
NWSL	5	4	9		
USL	15	1	16	.	*
USFL	7	1	8		
NFL	48	2	50	***	***
Total	196	26	222	***	***

P < 0.1. *P < 0.05 **P < 0.01 ***P < 0.001.

*Right pane indicates statistical differences from gender proportions of training programs and associations: P < 0.1. *P < 0.05 **P < 0.01 ***P < 0.001.*

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TABLE 3. National Orthopedic and Sports Medicine Census Data

	Male (%)	Female (%)
Surgical		
AAOS Members	27 671 (94.1)	1732 (5.9)
Orthopaedic surgery residents	3663 (83.0)	738 (16.7)
AOSSM	3429 (93.5)	239 (6.5)
Surgical sports medicine fellows	188 (89.2)	22 (10.4)
Nonoperative		
AMSSM members	3162(72)	1381(28)
Nonoperative sports medicine fellows	237 (67.1)	116 (32.9)

P < 0.1. *P < 0.05 **P < 0.01 ***P < 0.001.

representation of women in female sports leagues compared with male sports leagues, our study would indicate that inequalities are not due to the lack of availability of qualified and willing female orthopedic and sports medicine physicians.

In a survey of female physicians holding membership with the AMSSM or a certification with the American Board of Family Medicine, of the 182 female respondents, 75% of female sports medicine physicians older than 35 provided care for events and games, compared with 89% of females younger than 35. Encouragingly, 75% of respondents felt that the quality of opportunities afforded did not differ from their male counterparts, and 87% felt that the amount did not differ.¹³

The paucity of female physicians at higher level sports teams is detrimental to the recruitment of female medical students and residents to orthopedic surgery and primary care sports medicine. Several studies^{1,14} identify lack of mentorship and clinical exposure as a key barrier to recruiting more female sports medicine physicians. The benefits of gender diversity are numerous. Specific medical issues may be better addressed with a gender diverse team with knowledge of female athlete-specific musculoskeletal pathology.⁹ Research has also shown better improved communication, better outcomes, and compliance for patients identifying with the ethnicity and sex of the physician.⁹

LIMITATIONS

This study is not without limitations. Database queries and web searches for team physicians were not able to exhaustively capture all currently practicing surgical and primary care sports team physicians. Population size for professional women's sports team physicians was relatively small, limiting statistical analyses. In addition, these disparities are a representative of American sports teams and should not be extrapolated to all professional leagues. This study was cross-sectional and, therefore, did not capture trends in gender distribution over time. Finally, this study was not designed to identify the barriers for improved gender distribution but rather highlights the current disparities.

CONCLUSION

Overall, female representation is poor among orthopedic surgeons and primary care physicians providing sports medicine care to professional teams. Women's sports leagues

tend to have better representation of female physicians. Additional investigation into the barriers for gender diversity and initiatives to correct such processes must be taken to improve female representation.

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