

# A Comparison of Return to Sport Rates Between Male and Female Athletes After Anterior Cruciate Ligament Reconstruction in an Australian Context

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# Disclosures

- ▶ Haydn Klemm BSc&Nutr (Hons), I have no financial conflicts to disclose

# Background

- ▶ Returning to sport is a goal of most patients who undergo anterior cruciate ligament (ACL) reconstruction.
- ▶ Previous work has found that females return to sport (RTS) at a significantly lower rate to males
- ▶ Age is the only demographic factor that may indicate this lower rate of return

# Purpose

- ▶ To compare return to sport rates between men and women and investigate factors that may be associated with different rates of return in an Australian context.
- ▶ Study Design: Cohort study

# Method

- ▶ A total of 1338 patients who underwent primary ACL reconstruction between January 2014 and December 2017 were invited to complete detailed sports participation questionnaire 2 to 7 years after surgery. Rates of return to sport were calculated and compared for men and women.
- ▶ Patients were then divided according to age and geographical location and further sex comparisons in return to play rates between these groupings were made.
- ▶ Descriptive statistics were used to summarise return to sport data and contingency analysis to compare factors associated with rates of return to sport.

# Results

- ▶ The follow up rate was 81% (1080/1338)
- ▶ 658 (60.9%) males and 422 (39.1%) females made up the respondents
- ▶ Overall, females had a significantly lower rate of return to sport compared to males (65.4% v 74.9%,  $p=0.001$ ).
- ▶ A total of 769 patients reported returning to sport, with a significantly higher proportion of males (74.9%) returning compared to females (65.4%) ( $p=0.001$ )

# Results - cont.

- ▶ When patients were grouped by age at surgery (<20, 20-29, 30-39 & 40+), a significantly lower rate of return for females was only found in the 20-29 age group (p=0.010).

Table 1. Proportion and Percentage of Patients, Categorized by Age and Sex, who Returned to Sport 2-7 years after ACL reconstruction surgery

Age Group	Female	Male
<20	110 / 140 (79%)	136 / 162 (84%)
20-29*	90 / 145 (63%)	243 / 315 (77%)
30-39	47 / 78 (61%)	71 / 113 (64%)
40+	29 / 59 (49%)	43 / 68 (65%)

\*p=0.01 male vs female

# Results - cont.

- ▶ For those that returned to sport, there was no difference between males and females when comparing the level of sport to which they returned.

Table 2 Proportion and Percentage of Patients, Categorized by Age and Sex, Who Returned to Sport at a Lower, the Same, or Higher Level compared to preinjury.

		Female	Male
<20	Same/Higher	76 (82%)	90 (82%)
	Lower	17 (18%)	20 (18%)
20-29	Same/Higher	57 (69%)	137 (70%)
	Lower	26 (31%)	30 (30%)
30-39	Same/Higher	27 (63%)	43 (75%)
	Lower	16 (37%)	14 (25%)
40+	Same/Higher	19 (68%)	28 (70%)
	Lower	9 (32%)	12 (30%)



# Results - cont.

- ▶ When grouping patients based on geographical location (metropolitan vs rural) there was a significantly lower rate of return to sport in metropolitan females compared to metropolitan males ( $p < 0.001$ ), and rural females ( $p = 0.042$ ).

Table 3 Proportion and Percentage of Patients, Categorized by Sex and Geographical Location, who Returned to Sport

	Female <sup>+</sup>	Male
Metropolitan*	170 / 273 (62%)	360 / 486 (74%)
Rural	106 / 149 (71%)	133 / 172 (77%)

\* $p < 0.0001$  metropolitan males vs metropolitan females, +  $p = 0.042$  metropolitan females vs rural females

# Conclusion

- ▶ Although females returned at a lower rate to males overall, this difference was predominantly seen in the 20-29 age bracket.
- ▶ For patients that did return to sport, there was no sex difference related to the level at which they returned
- ▶ Metropolitan females have a lower rate of return to sport in comparison to rural females and metropolitan males.

# References

- ▶ Webster KE, Feller JA. Return to Level I Sports After Anterior Cruciate Ligament Reconstruction: Evaluation of Age, Sex, and Readiness to Return Criteria. *Orthop J Sports Med.* 2018;6(8):2325967118788045.
- ▶ Ardern CL, Taylor NF, Feller JA, Webster KE. Fifty-five per cent return to competitive sport following anterior cruciate ligament reconstruction surgery: an updated systematic review and meta-analysis including aspects of physical functioning and contextual factors. *Br J Sports Med.* 2014;48(21):1543-52.