

The Impact of Physical Activity Following ACL Reconstructive Surgery on Recovery in Collegiate Athletes

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INTRODUCTION

In recent decades, it has been increasingly common for athletes to suffer injuries of the anterior cruciate ligament (ACL). One study conducted by Shaw and Finch found that the annual rate of ACL injuries in youth and adolescent athletes between 2005 to 2015 increased by 147.8%. Typically, individuals who undergo ACL reconstruction will also undergo some sort of physical therapy or physical activity treatment to help the ligament heal and recover efficiently. However, the protocol for returning to high level sporting activities is often unclear. A study conducted by Herrington et al. found that current approaches to ACL rehab fail to yield consistent outcomes due to a lack of understanding what goals should be met in rehabilitating the knee. The goal of this study was to assess the overall impact of different physical activity levels and types of physical activity following reconstructive surgery of the ACL and the impact it can have on the recovery process in collegiate athletes.

METHODS

This was a primary cross-sectional study. Over the course of two weeks, a survey evaluating the ACL rehabilitation process was sent to varsity and club athletes at the University of Dayton who have undergone ACL reconstruction. There were 30 total submissions, but 10 were completed by individuals who do not attend the University of Dayton, so 20 of the submissions (10 males and 10 females) were analyzed in the results. The survey asked demographic questions as well as questions regarding the type of therapy the individual underwent after surgery and current knee comfort levels when engaging in their respective sports. Statistical analysis was done using t-tests.

RESULTS

This study examined the impact physical therapy had following ACL reconstructive surgery in collegiate athletes. There were 20 participants total that were studied including 10 females and 10 males. The sample size was originally 30 collegiate athletes but had to be reduced by 10 participants who were not University of Dayton students. The average age of the participants was 20.3 (SD = 1.0) with 90% of participants being white and 10% being African American. Additionally, one participant only filled out demographic questions and did not answer questions regarding the recovery process, and thus this person's responses were not analyzed with the rest of the data presented in Table 1.3 and Figure 1.4. This lowered the sample size from n=20 to n=19. The data in Table 1.3 displays current knee comfort levels and problems experienced since reconstruction in those who went through physical therapy versus strength training/conditioning as a means of rehabilitation. Participants who engaged in physical therapy exhibited lower mean comfort levels (3.3) in comparison to the strength training/conditioning group (3.5), but the physical therapy group has experienced fewer problems than the strength training/conditioning group. A Welch's T-test was utilized to determine if there was any significant difference between the months after surgery it took to get cleared to play for the two groups. After conducting this test, a p-value of 0.0074 was found indicating that there was a significant difference in clearance after surgery between people who did physical therapy versus those who did strength conditioning. Finally, an unpaired t-test was utilized to determine statistical significance between recovery time and return to play shown in Figure 1.4 The t-test yielded a p-value of >0.0001, indicating statistical significance. Those who were cleared in 3 months had the lowest comfort levels while those who were cleared in 9 had the highest comfort levels.

Table 1.3 The impact of the type of physical treatment undergone after surgery on current knee comfort levels (n=19)

Type of Physical Activity	On a scale of 1-5, current knee comfort levels when participating in respective sport, mean (SD)	Problems experienced since surgery	
		Yes, n (%)	No, n (%)
Physical Therapy	3.3 (1.1)	5 (33.3)	10 (66.7)
Strength Training/Conditioning	3.5 (1.0)	3 (75.0)	1 (25.0)

Table 1.3

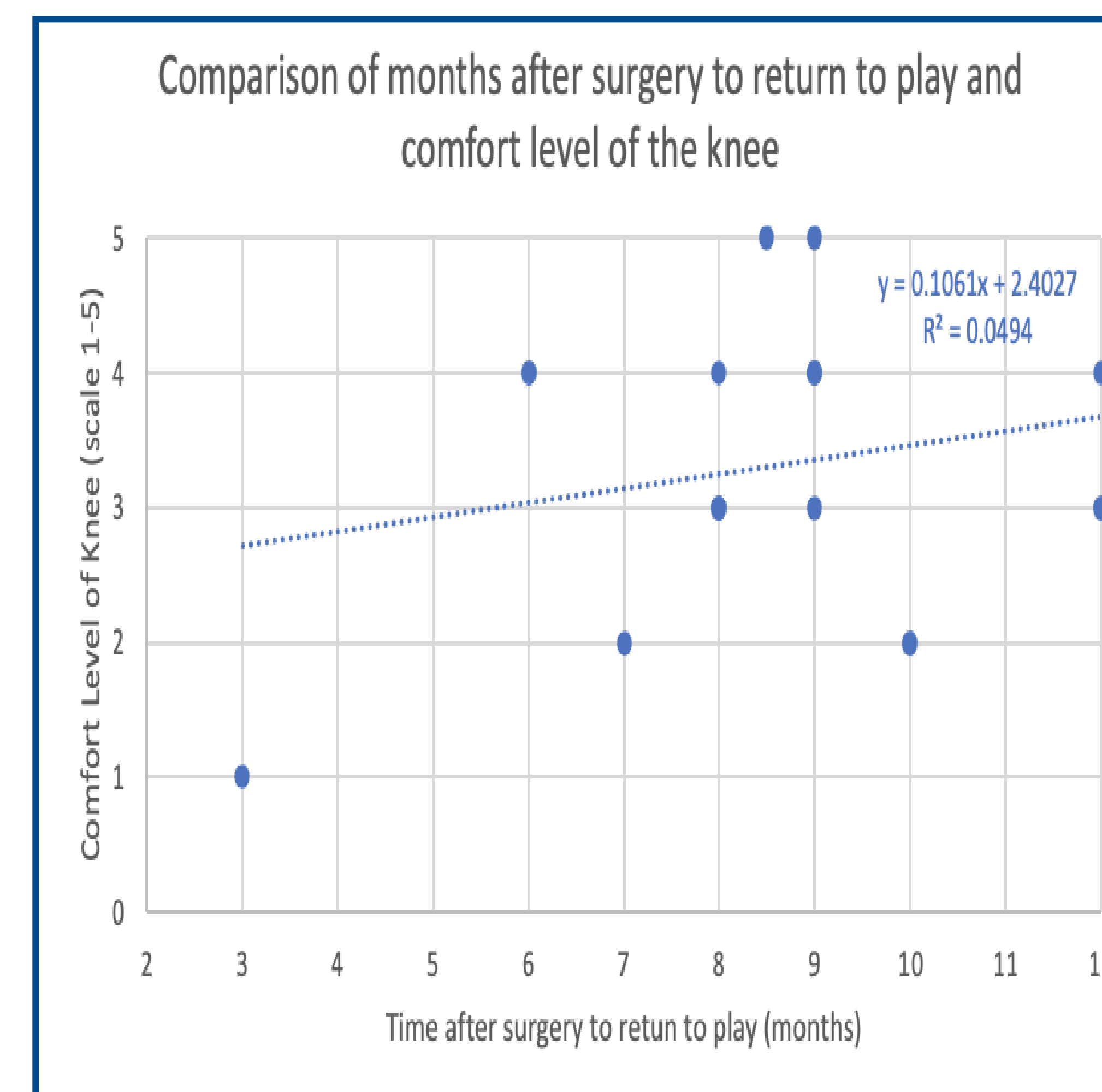


Figure 1.4

CONCLUSIONS

In conclusion, the findings of this study suggest that physical therapy may be more effective than strength training/conditioning in promoting a smoother recovery process following ACL reconstructive surgery in collegiate athletes. Participants who engaged in physical therapy exhibited slightly lower mean comfort levels, however, they experienced fewer problems since reconstruction compared to those who underwent strength training/conditioning. Additionally, the physical therapy group was cleared to play significantly earlier than the strength training/conditioning group. These results highlight the importance of incorporating physical therapy into the rehabilitation process following ACL reconstructive surgery in order to optimize recovery outcomes. However, it is important to note that the sample size of this study was small and may not be representative of the larger population of collegiate athletes.

REFERENCES

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