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Title: Comparison of Home Versus Supervised Physiotherapy Rehabilitation Post Anterior Cruciate Ligament (ACL) Reconstruction in Recreational Athletes : A Randomized and Single Blind Study

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Disclosures: Nil



Comparison of Home Versus Supervised Physiotherapy Rehabilitation Post Anterior Cruciate Ligament (ACL) Reconstruction in Recreational Athletes : A Randomized and Single Blind Study

Introduction

- Home-based (HB) rehabilitation is an alternative method of physiotherapy after ACL reconstruction to regain pre injury state level and to achieve a successful ligament reconstruction surgery especially during Covid pandemic period due to lockdown and restrictions.

Comparison of Home Versus Supervised Physiotherapy Rehabilitation Post Anterior Cruciate Ligament (ACL) Reconstruction in Recreational Athletes : A Randomized and Single Blind Study

Objectives

- The main objective is to compare the outcome of ACL reconstruction between patients who completed a home-based rehabilitation program and patients who underwent a supervised physiotherapy rehabilitation program, for the first 6 months after surgery in terms of functional outcome, knee motion, graft laxity, and knee strength



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Methodology

- This is a prospective randomized and single-blinded study that was conducted over 2 years duration. 34 patients with ACL injury were randomized before surgery to either supervised physiotherapy (SP) or HB group. 27 patients completed rehabilitation (15 in SP;12 in HB). Patients were given an instructional video CD and equipment to perform rehabilitation at home. They were reviewed at 6-week, 3-month, and 6-month to evaluate knee range of motion (ROM), muscle strength and power by using Biodex dynamometer, knee stability by using KT-1000 and functional outcomes evaluated using Lysholm scoring



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Result

- The mean age for both groups was almost similar. 20 of the 27 patients were male. The patients were homogeneously distributed in both groups. All patients achieved the targeted range of motion except a patient in the SP group. Functional outcome scores improved at 6 months but were statistically insignificant (P value 0.652 at 3 months and 0.323 at 6 months). Knee laxity did not show any significant difference at 6 months (p: 0.371). Muscle strengths that were measured at 2 different speeds (180°/s and 300°/s) showed no significant difference as well as knee power after 6 months of home-based physiotherapy.



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Demographic Data

Variables	Home Based	Supervised	P- Value
	N=12	Physiotherapy	
		N=15	
Age	18-37 (Mean=24)	19-40 (Mean=25)	0.793
Gender	Male: 8	Male: 12	0.662
	Female: 4	Female: 3	
Meniscus Injury	Yes: 3	Yes: 5	0.696
	No: 9	No: 10	
Weight	Mean: 61.75kg	Mean: 60.4Kg	



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Functional Outcome

At 3rd Month

Functional Outcome at 3 month	N	Mean	Std Deviation	95% Confidence interval		P value
				Lower	Upper	
Home Based	12	86	6.782	- 4.912	7.712	0.652
Supervised	15	84.6	8.700			

At 6th Month

Functional outcome at 6 month	N	Mean	Std Deviation	95% Confidence interval		P value
				Lower	Upper	
Home Based	12	97.75	2.137	- 1.895	5.528	0.323
Supervised	15	95.93	5.922			



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Knee Strenght

	Home Based N=12 (N-M)	Supervised N=15 (N-M)	Z score	P value *
Knee Strength	21.95 (32)	22.5 (35.7)	- 0.049	0.961
180degree/s Extension				
Knee Strength	6.55 (15.1)	6.2 (10.3)	- 0.195	0.845
180degree/s Flexion				
Knee Strength	10.2 (22.5)	7.6 (19.6)	-0.147	0.883
300degree/s Flexion				
Knee Strength	19.95 (22.4)	21.6 (17.3)	- 0.440	0.660
300degree/s Extension				

Knee Power

	Home Based N=12 (Watts)	Supervised N=15 (Watts)	Z score	P value *
Knee Power	22.25 (31.8)	18 (31.1)	-0.224	0.807
180degree/s Extension				
Knee Power	17.1 (43.6)	8.1 (35.9)	-0.342	0.732
180degree/s Flexion				
Knee Power	25.52 (26)	25.7 (22)	-0.049	0.961
300degree/s Extension				
Knee Power	19 (37.1)	18.5 (36)	-0.147	0.883
300degree/s Flexion				

• Mann Whitney U test



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Graft Laxity

Knee Laxity at 6 month	N	Mean Difference (mm)	Std Deviation	95% Confidence interval		P value
				Lower	Upper	
Home Based	12	2.33	0.888	- 0.869	0.336	0.371
Supervised	15	2.60	0.632			



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Discussion and Conclusion

- A structured and video-facilitated HB rehabilitation was as effective as SP in achieving acceptable outcomes after 6 months post ACL reconstruction to be applied as the impact of mobility restriction during the Covid pandemic. Thus, it will provide a successful alternative method for the patients to return to the field post ACL reconstruction.



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