



EFFECT OF ISOKINETIC EXERCISES FOR THE DEVELOPMENT OF HAMSTRING STRENGTH OF SOCCER PLAYERS

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Abstract

The purpose of the study was to see the effect isokinetic exercises for the development of hamstring strength of soccer players. The subjects selected for the study was 5 male football players with age ranged between 10-16 years from football academy of L.N.I.P.E. Gwalior. The subjects underwent six weeks of isokinetic knee flexion strength training program on isokinetic trainer humac norm cybex machine. To determine the Effect of Isokinetic Exercises for the Development of Hamstring Strength of Soccer Players Paired- 't' test was used. All analyses were performed by SPSS version 20. The Paired Samples Statistics- 't' test estimated differences between the Pre and post test results. The paired t-value found significant in relation to Forced Vital Capacity and Respiratory Rate as the calculated t values were -5.28, --3.11 respectively, which was more than the tabulated value of t-value which is 2.262 and paired t-value found insignificant in relation to Peak Expiratory Flow (-1.60) which was less than the tabulated value of t. Results revealed that Isokinetic strength training programs is effective and the physiological parameters were found significantly superior in FVC and RR post testing as compared to the pretest.

Key words: *Physiological Variables, football Player, Isokinetic Training.*



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Introduction

Football strength is a training regime, considered the most complex physical quality to be developed by an athlete. The training regime, exercises used, how the exercises are performed, and the types of equipment all play important roles in achieving desired results.

The role of strength preparation is highly valued in football. However, it is usually performed for character development, rather than for the specific work of the intramuscular system required in football. The role of strength preparation is crucial not only for increasing muscular strength, which by itself provides an advantage, but also for developing the specific training effects of strength exercises.

An isokinetic contraction is a dynamic contraction but the speed of the entire movement is controlled by the machine. This control prevents injury and also measures areas of strength and weakness in muscles. Any exercise involving the contraction of muscles can be isokinetic if the dynamometer is being used. Same movement speed, Movement occurring at a constant, controlled speed dynamic muscle activity performed at a constant angular velocity; torque and tension remain constant while muscles shorten or lengthen.

Hence, the purpose of the study was to the effect isokinetic exercises for the development of hamstring strength of soccer players.

Materials and Methods

Subject:

The subjects for this study were selected from the football academy held in LNIPE Gwalior 2014. The study was conducted on 5 male soccer players with the age ranged in between 10-16 years. Hamstring strength was measured by isokinetic trainer humac norm cybex machine.

To determine the effect isokinetic exercises for the development of hamstring strength of soccer players paired -'t' test was used using SPSS version 20.

Findings

Findings pertaining to hamstring strength pre and posttest male soccer players which were subjected to the paired ‘t’ ratio and mean difference method has been given in Table 1

Table 1: Paired Samples Statistics

Variables	Pairs	N	Mean	Std. Deviation
hamstring strength	Pre	5	108.00	14.83
	Post	5	136.00	15.16

Table 1 Show the mean and standard deviation of male soccer player’s pre and post test result in hamstring strength. In hamstring strength pre data was 108.00 ± 14.83 and post 136.00 ± 15.16 .

Table 2

Pair 1	Paired Differences							
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pre Hamstring Strength – Post Hamstring Strength	-28.0	14.83	6.63	-46.41	-9.58	-4.22	4	.013

* Significant at 0.05 level; $t_{0.05}(4) = 2.776$

Table 2 shows the Paired Samples Test of hamstring strength variables of male soccer players. In hamstring strength the value of t-statistics is -4.22 and P-value is .013 which was found significant as the tabulated t-value is 2.776 which was smaller than the calculated t-value and the P-value is also less than .005.

Discussion and Conclusion

The analysis of data revealed that the Isokinetic strength training program of six weeks was found to be significant on hamstring strength. As the calculated t-value is (-4.22) which was more than tabulated t-value (2.776).

It may be due to the reason that much of the improvement in strength which was evidenced in six weeks of training is attributable to neural adaptation i.e. more number of motor unit were probably involved in one muscle contraction, motor units were greater in size and their rate of

firing was faster than before training. The other reason could be increased in cross sectional area of the muscles, architecture of the muscles and resting length of the muscles at the time of contraction. As this was also supported by the (**Abdolhamid Daneshjoo**) he investigated the bilateral and unilateral asymmetries of strength and flexibility in male young professional soccer players

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