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Impact of Plyometric with Skill Training on Hamstring Flexibility of School Level Tennis Players

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Abstract

The purpose of this study was to find out the "effect of specific sports training on the selected performance related fitness variables of school level tennis players". The investigator selected 50 male school level tennis players selected from Pro serve tennis academy, Coimbatore, whose age was ranging from 11 to 14 years. The subjects were divided into two equal groups. Group I consisting of 25 subjects called as the experimental group and Group II consisting of 25 students called as the control group. Group I was assigned the specific sports training program. The control group was not given any kind of treatment. The dependent variables namely, right leg hamstring flexibility and left leg hamstring flexibility was selected and measured by gonio meter for this study. The data was analysed by the use of paired 't' test. The obtained 't' ratio was tested for significance at 0.05 level of confidence. The analysis of the data revealed that there was a significant improvement on the selected dependent variables namely right leg hamstring flexibility and left leg hamstring flexibility by the application of specific sports training programme.

Keywords: Right leg hamstring flexibility, Left leg hamstring flexibility, Goniometer.

Introduction

Sport in Society educates and supports emerging leaders and organizations within sport with the awareness, knowledge and skills to implement innovative and impactful solutions for social change. Topical areas of work include, leadership, healthy development, diversity and inclusion, violence prevention, community building, community service, and civic engagement. Specific sports training is simply fitness and performance training designed specifically for athletic performance enhancement. Training programs for athletic performance enhancement could include the areas such as strength, speed, power, endurance, flexibility, mobility, agility, mental preparedness (including goal setting), sleep, recovery/regeneration techniques and strategies, nutrition, rehabilitation, pre-habilitation, and injury risk reduction. A general program should include all of these components and a more specific program may only include a few, depending upon the athlete's specific needs (based on strengths, weaknesses and/or imbalances) and the demands of the sport they participate. Plyometrics can best be described as "explosive-reactive" power training. A plyometric event involves powerful muscular contractions in response to a rapid stretching of the involved musculature. These powerful contractions are not a pure muscular event; they have an extremely high degree of central nervous system involvement.

Plyometric drills are generally conducted as a form of "jump training". The method of training which seeks to enhance the explosive reaction of the individual through powerful muscular contractions as a result of rapid eccentric contractions. Plyometric training for the lower extremities is often classified according to response of ground contact times. Thus, the terminology "rapid response" and "longer response" appears in the literature. Rapid response exercises are generally used to develop footwork drills. They are performed as brief, quick responses to the ground contact. Plyometrics that use the total lower extremity in larger amplitude movements such as jumping or bounding are intended to develop a higher degree of force and thus require longer ground contact times in order to develop these forces, and are known as "long response" jumps. The physiological basis of plyometrics lies in what is known as "stretch-shortening" cycle of muscle activity. Muscles are designed in such a way that when rapidly stretched, they 'rebound' and shorten in reaction to rapid stretching. This only occurs when the magnitude and rate of stretch is rapid and of sufficient magnitude that it will trigger this muscle action. This rebound effect allows the muscles to develop more forceful and faster contraction speeds than if they are not subjected to a stretch stimulus.

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Methodology

For the purpose of this study 50 tennis players (school level) selected from Pro serve tennis academy, Coimbatore, whose age was ranging from 11 to 14 years. The subjects were divided into two equal groups namely experimental and control groups consisting 25 subjects each. Experimental group was given 12 weeks (Duration - 12 weeks, Session - 3 days / week, Duration of one session –Ninety minutes) of training and the control group was not given any specific training. The skill training with plyometric training was given to experimental group. The subjects were tested in the selected dependent variables namely right leg hamstring flexibility and left leg hamstring flexibility by gonio meter, before and after the training period. The collected data was treated by using paired t-test. The level of confidence was fixed at 0.05 level.

Results

Table 1

Computation of 't'-ratio between the pre and post tests on right leg hamstring flexibility of experimental and control groups

Group	Test	M	SD	σ DM	DM	t-ratio
Experimental	**Pre Test**	80.16	4.22	0.97	5.08	5.22*
	Post Test	85.24	3.47			
Control	**Pre Test**	80.04	1.17	0.36	0.04	0.11
	Post Test	80.08	1.61			

* significance at 0.05 level.

The table 1 indicates that there was a significant improvement on the right leg hamstring flexibility through the specific sports training. It reveals that the obtained t-ratio 5.22 is greater than the required table t-ratio of 2.09 at 0.05 level of confidence. So there was a significant improvement on the right leg hamstring flexibility between pre and post tests of experimental group, whereas control group showed no significant improvement. Hence, the results indicated that the significant improvement on the right leg hamstring flexibility was due to the specific sports training alone.

Figure I

The figure showing the mean difference of pre and post-tests scores on right leg hamstring flexibility of experimental and control groups

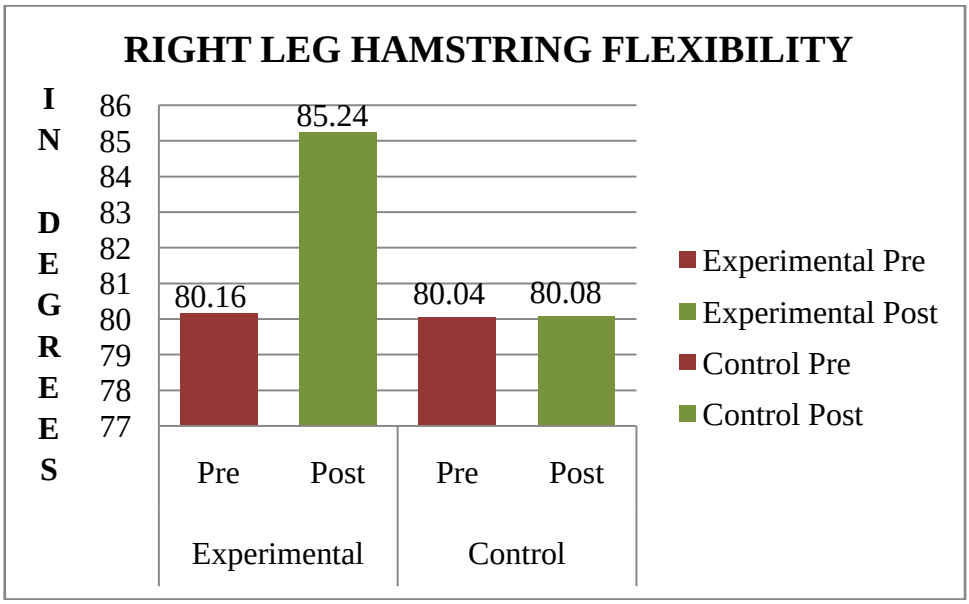


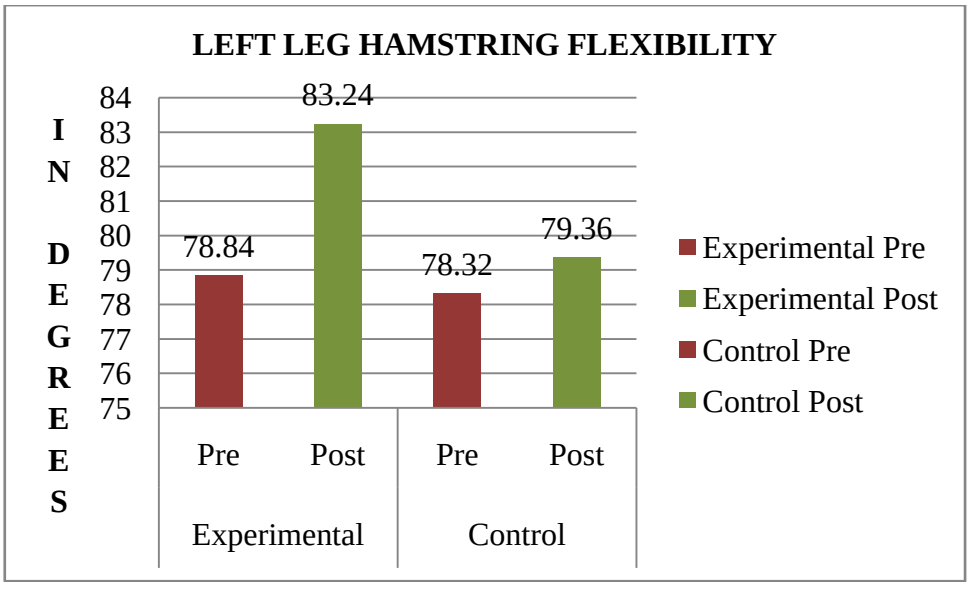
Table 2
Computation of 't'-ratio between the pre and post tests on left leg hamstring flexibility of experimental and control groups

Group	Test	M	SD	σ DM	DM	t-ratio
Experimental	**Pre Test**	78.84	3.61	1.04	4.40	4.22*
	Post Test	83.24	4.56			
Control	**Pre Test**	78.32	3.15	1.01	1.04	1.03
	Post Test	79.36	3.62			

* significance at 0.05 level.

The table 2 indicates that there was a significant improvement on the left leg hamstring flexibility through the specific sports training. It reveals that the obtained t-ratio 4.22 is greater than the required table t-ratio of 2.09 at 0.05 level of confidence. So there was a significant improvement on the left leg hamstring flexibility between pre and post tests of experimental group, whereas control group showed no significant improvement. Hence the results indicate that the significant improvement on the left leg hamstring flexibility was due to the specific sports training alone.

Figure II
The figure showing the mean differences of pre and post-tests scores of left leg hamstring flexibility of experimental and control groups



Discussion of Findings

The result of the study reveals that the twelve weeks of specific sports training programme on the selected dependent variables there was a significant improvement on the right leg hamstring flexibility through the specific sports training. There was a significant improvement on the right leg hamstring flexibility between pre and post tests of experimental group, whereas control group showed no significant improvement. Hence, the results indicated that the significant improvement on the right leg hamstring flexibility was due to the specific sports training alone.

The result of the study reveals that the twelve weeks of specific sports training program on the selected dependent variables there was a significant improvement on the left leg hamstring flexibility through the specific sports training. There was a significant improvement on the left leg hamstring flexibility between pre and post tests of experimental group, whereas control group showed no significant improvement. Hence, the results indicated that the significant improvement on the left leg hamstring flexibility was due to the specific sports training alone.

The study reveals that the twelve weeks of specific sports training program significantly improved the right leg and left leg hamstring flexibility. In the control group there were no changes as they were not given any special training. Subjects chosen for the experimental study was not given any physical exercise other than the treatment. Thus it was concluded that any improvement on the selected variable was on the account of treatment given. The result of this investigations showed that there was a significant improvement on the right leg and left leg hamstring flexibility between pre and post test of experimental group as a result of 12 weeks specific sports training.

Conclusion

1. It was concluded that there was a significant improvement on the selected variables namely right leg hamstring flexibility and left leg hamstring flexibility by the application of specific sports training programme.

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