

A Test of Plyometric Training and Circuit Training on Speed and Stride Length of Tamilnadu Physical Education & Sports University Athletes

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Abstract

The research was to finding the analysis of plyometric training and circuit training on speed and stride length of TNPESU athletes. For this study 30 men, athletes from TNPESU athletes in the age range of 18 to 25 years were presented in the research. They are divided into 3 groups: bunch A as plyometric preparation, bunch B as circuit preparation, and bunch C as control. The experimental group prepared their training protocol for 8 weeks. The speed and stride length was measured by 50mts run. . The experimental group prepared their training protocol for 8 weeks. Speed and stride length was measured by 50 meters run. The data were collected before and after the training period of six weeks and the data collected were statically analysed by the 'ANOVA' test, which was used to find out the significant improvement in selected variables from the baseline to post. The result of the study on plyometric training and circuit training produced significant improvement in the speed and stride length of TNPESU athletes

Keywords: *Plyometric Training, Circuit Training, Speed, Stride Length, Athletes*

Introduction

Running speed plays a crucial role in many sports and is considered a fundamental motor skill. Plyometric exercises are defined as an eccentric load immediately followed by a concentric contraction Talukdar, 2022. Muscular and Golgi Tendon Organs. The stretch reflex is triggered during the eccentric loading phase and may allow increased motor unit recruitment during the subsequent concentric contraction Chimera, 2004. The serial and parallel connective tissue components of the muscle also store elastic energy which can generate additional force when a muscle quickly rebounds in the form of a concentric contraction Eraslan, 2021. The stretch reflex and stored elastic energy combine to create a greater concentric force Aksovic, 2021. Plyometric interventions have yielded favourable outcomes in terms of performance outcomes. Compared to normal training, upper-body plyometric training resulted in additional improvements in upper-body strength, power and endurance Varalakshmy, 2020.

Circuit training is a secure powerful and amusing technique to exercise that may be loved via way of means of an extensive kind of people. It is appealing to each male and female more youthful and older age business athletes. The pace at which particular moves are carried out in particular athletic sports is likewise required. The modern form of circuit training was developed by R.Morgan and G. Anderson 1953, Method for developing the general physical condition. His initial circuit training routine consisted of multiple stations arranged in a circle to alternately target muscle groups from station to station Raj Kumar, 2005. This type of training grew in popularity and spread due to advancements, improvements in muscle strength and endurance, and components of aerobic fitness Klika, 2013. There are different approaches depending on whether the goal is to assess fitness for successful athletic participation Vikesh Kumar, 2016.

Methodology

In this investigation, the subjects were taken from TNPESU, Tamilnadu, India. 30 men Athletes are implemented in this study and their age range is between 18 to 25 years. They are divided into 3 bunch each bunch of 10 subjects: bunch A as plyometric preparation, bunch B as circuit preparation, and bunch C as control bunch. The experimental group prepared their training protocol for 8 weeks. The training protocol was given in the morning section of alternate days of the week for 8 weeks. Before and after the training protocol of 8 weeks the data of subjects was collected for analysis of their performance. The instructor gave the proper warming up before the training program and give all the explanations about the training and clarified the doubts. Speed and stride length was measured by 50 meters run. After the 8 week training protocol the data was collected from the subjects.

Tests and statistical data analysis

Information was dissected utilizing SPSS Statistics (SPSS Statistics for Windows: IBM Corporation, adaptation 26.0). Pre and post-proportions of speed and stride length estimated utilizing (50 meters run) were thought about utilizing Analysis of variance.

Results And Discussions

Table -I
ANOVA OF EXPERIMENTAL BUNCHES AND CONTROL BUNCH SPEED AND STRIDE LENGTH

Speed							
Tests	PLT	CRT	CNT	S.O.S	D.F	MS	F-Ratio
Pre-Test	7.07	7.09	7.08	0.11	2	0.06	0.572
				2.81	27	0.10	
Post-Test	6.59	6.70	7.07	1.24	2	0.62	5.63*
				3.04	27	0.11	
Stride length							

Tests	PLT	CRT	CNT	S.O.S	D.F	MS	F-Ratio
Pre-Test	1.51	1.54	1.54	0.006	2	0.003	0.702
				0.112	27	0.004	
Post-Test	1.72	1.69	1.54	0.185	2	0.093	17.29*
				0.145	27	0.005	

*Significant at 0.05 level table value 3.32 df 2.27

As shown in Table I, the obtained pre-test means for speed in the PLT Bunch was 7.07 CRT bunch 7.09 and the control group was 7.08. The obtained pre-test F-value was 0.572 and the required table F-value was 3.32 it was lesser than the table value. The obtained post-test means of speed in the PLT Bunch was 7.07 CRT bunch 7.09 and the control group was 7.08. The obtained speed post-test F-value was **5.63*** was greater than the required value of 3.32 and hence, it was accepted that there were significant differences among the bunches.

The obtained pre-test means for stride length in the PLT Bunch was 1.51 CRT bunch 1.54 and the control group was 1.54. The obtained pre-test F-value was 0.702 and the required table F-value was 3.32 it was lesser than the table value. The obtained post-test means of stride length in the PLT Bunch was 1.72 CRT bunch 1.69 and the control group was 1.54. The obtained stride length post-test F-value was **17.29*** was greater than the required value of 3.32 and hence, it was accepted that there were significant differences among the bunches.

Discussion on Finding

Talukdar, 2022 the significance of innovative strength and PT on sprinting overall performance in younger females. Chimera, 2004 the position of hip-musculature activation techniques for dynamic restraint and management of decreased extremity alignment at floor contact. Plyometric physical games have to be included in the schooling regimens of lady athletes and can lessen the hazard of injury. Eraslan, 2021 plyometric preparation interventions in adolescent overhead athletes with reference to upper- and decrease-frame consequences which could probably enhance game overall performance. Aksovic, 2021 Plyometric preparation includes using physical games wherein the real muscle groups after eccentric contraction grows to be concentric.

Varalakshmy, 2020 ballistic training and Plyometric training has confirmed higher overall performance on Explosive energy and essential capacity. Arun Prasanna, 2020 mobility workout and circuit plyometric training will enable the university college students to enhance their overall performance stage in an excellent manner. Raj Kumar, 2005 circuit kind plyometric schooling has proved extra powerful in enhancing the leaping talents of the extra saturated with intensity leaping physical games. Vikesh Kumar, 2016 the Circuit Training had substantially stepped forward the pace, leg energy, arm energy and agility. Bachero-Mena, 2021 high-pace and low-quantity produced higher enhancements in each electricity and going for walks overall performance than a circuit training.

Conclusion

In the light of the research the conclusion was written and the results show that the eight weeks of plyometric training and circuit training protocol will improve the better performance of TNPESU athletes.

Acknowledgement

Ethical Clearance: Nil

Source of Funding: Self

Conflict of Interest: Nil

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