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Effect of Combination of Speed Training Plyometric Training with and Without Video Modeling and Video Feedback of Fast Bowling Parameters of Inter Collegiate Fast Bowlers

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Abstract: The purposes of the study was to find out the effect of combination of speed training plyometric training with and without video modelling and video feedback of fast bowling parameters of inter collegiate fast bowlers. 36 male intercollegiate cricket fast bowlers from Madurai Kamaraj University associated colleges in Tamil Nadu, India, were chosen as the study's subjects in order to achieve its goals. They were between the ages of 18 and 27. The chosen participants were randomised into two groups at random, with group "A" receiving training that included speed and plyometric with video modelling and video feedback (n = 12), group "B" receiving training that included speed and plyometric without video modelling and video feedback (n = 12) and group "C" serving as the control group (n = 12). Three days per week, for eight weeks, Group "A" experienced speed training, plyometric training, video modelling and video feedback training. Each session lasted roughly 45 to an hour. Three days per week, for eight weeks, Group "B" performed a combination of speed training, plyometric training without video modelling, and video feedback training. Each session lasted roughly 45 to an hour. The control group did not receive any special training, although they did engage in routine activities.

Kewwords: Combination of Speed training plyometric training with and without video modelling and video feedback Training, Speed of the Bowling, Cricket Fast Bowlers.

Introduction

Sports athletes, coaches, and researchers are always searching for novel approaches to enhance athletic performance and gain a competitive advantage. Sports vision is described as a group of techniques designed to preserve and improve visual function with the goal of improving athletic performance. The student is given instruction on the visual behaviors required for various sports as part of this procedure [1].

Modern educational theorists and ideologists disagree with prior conceptions of teaching as knowledge transfer and see teaching as assisting students in comprehending difficult and complex subjects. One approach of overcoming this challenge is through using instructional technology. Using educational technology, one of the educational institutions was able to reduce instruction time by up to 28%. Additionally, by utilising those techniques and approaches, more teaching has been given and more subjects have been taught in less time. Video and film are some of the educational resources. Teaching patterns and paying attention to others are two of the most important methods for altering behavior and acquiring new kinetic abilities [2, 3, 4].

In a nutshell, technology helps us do numerous activities in our daily lives. It may be defined as tools and methods that improve our quality of life and broaden our range of capabilities, making individuals the most important component of any technological system. Another way that science is applied to tackle problems is through technology. When humanity struggled to improve its situation in the 14th to 16th centuries, technology began to bring about societal changes. A significant technological advancement at that time was the introduction of the printed press. Later, information access was used to advance agriculture, expand food supply, and

promote food production, which improved everyone's lives as a whole. Therefore, the rise of technology led to numerous transformations and industrialization. Internet's inception is the most [5].

In video self-modelling (VSM), learners watch successful examples of their own actions on video and then duplicate them. Video modelling is a method of instruction that employs video recording and display equipment to create a visual model of the targeted behaviors or skills. Many talents, such as social skills, communication, and athletic performance action, have been taught using video modelling [6, 7]. Modelling and imaging have generally been discussed in research as independent and different processes, yet some researchers [8,9] have noted that modelling and imagery are similar; both involving the use of cognitive representations and rehearsal prior to the actual physical execution of the skill. As a result, intriguing patterns are produced by infinitely repeating pictures on top of one another [10]. Due to input and output scanning operations, the loop delay from camera to display back to camera is at least one video frame time; it may even be longer if there is additional processing involved.

Purpose of the Study

The purpose of the study was to find the effect of combination of speed training plyometric training with and without video modelling and video feedback of fast bowling parameters of inters collegiate fast bowlers.

Methodology

The study was to find out the effect of combination of speed training plyometric training with and without video modelling and video feedback of fast bowling parameters of inter collegiate fast bowlers. 36 male intercollegiate cricket fast bowlers from Madurai Kamaraj University associated colleges in Tamil Nadu, India, were chosen as the study's subjects in order to achieve its goals. They were between the ages of 18 and 27. The chosen participants were randomised into two groups at random, with group "A" receiving training that included speed and plyometric with video modelling and video feedback (n = 12), group "B" receiving training that included speed and plyometric without video modelling and video feedback (n = 12)and group "C" serving as the control group (n = 12). Three days per week, for eight weeks, Group "A" experienced speed training, plyometric training, video modelling and video feedback training. Each session lasted roughly 45 to an hour. Three days per week, for eight weeks, Group "B" performed a combination of speed training, plyometric training without video modelling, and video feedback training. Each session lasted roughly 45 to an hour. The control group did not receive any special training, although they did engage in routine activities. By using cutting-edge technology, a radar gun measuring bowling speed in KPH. The pre and post-tests data were collected on selected criterion variable prior to and immediately after the training program.

Determination of the Pocket Radar Test

This test is intended to determine an object's maximum speed of the ball. To identify the speed of the ball we use the pocket radar device. To get correct speed gun readings most pocket radar will need to be placed directly in the line of travel of the object to be clocked. The resolution of radar may vary, ranging from +/-0.1 mph to +/-1.0 mph. The accuracy is difficult to determine, as it would require you to find an object of known speed to calibrate against.

Statistical Analysis

Significant positive changes occur in speed of bowling and back strength has been found by analysing and comparing the pre-test and post-test scores through paired sample ‘t’ test and to find out the difference exists between three groups were analysed through one way ANCOVA at the level of significance at 0.05. Whenever the “F” ratio for adjusted post-test means was found to be significant, Scheffe’s test was followed as a post hoc test to determine which of the paired means difference was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses. The collected data were statistically analysing with use

of SPSS 17.1 trail version.

Analysis of Data

The table-1 shows that the pre-test mean value of experimental group 'A', experimental group 'B' and control groups on speed of bowling and are 116.27, 115.64 and 115.34 respectively and the post- test means are 124.95, 119.83 and 117.07 respectively. The obtained dependent t-ratio values between the pre and post-test means of experimental and control groups are 12.73, 11.08 and 1.41 respectively. The table value required for significant difference with df 11 at .05 level is 2.20. From the above table the paired sample-'t'-test value of speed of bowling between pre and post-tests means of experimental group was greater than the table value 2.20 with df 11 at .05 level of confidence, it was concluded that the experimental group 'A' and experimental group 'B' had significant improvement in the speed of bowling when compared to control group. The below figure- 1 shows the pre and post-tests mean values of both experimental and control groups on speed of bowling.

From the table 2 shows that the adjusted post-test means values on speed of the ball. The obtained f- ratio for variables was 57.19 but the required table value of df 2 and 32 was 3.32. It shows that the adjusted post-test values were greater than the required table value at 0.05 level of confidence. This results of the study indicated that there was a significant mean difference exist between the both experimental and control groups on speed of the ball. Since the obtained 'F' ratio value was significant further to find out the paired mean difference, the Scheffe's test was used. So Scheffe's post hoc test on speed of the ball of both experimental groups and control group has been applied and the results were presented in table 3.

The table 3 shows that the mean difference values between experimental group 'A' & experimental group 'B', experimental group 'A' & control group 'C', experimental group 'B' & control group were 5.05, 7.33 & 2.28 respectively which are greater than the confidence interval value 2.23 at 0.05 level of confidence. The results of the study showed that there were a significant difference between experimental group 'A' & experimental group 'B', experimental group 'A' & control group 'C', experimental group 'B' & control group on speed of the ball. The pre and posttest means, and adjusted posttest means of experimental group 'A' & experimental group 'B', experimental group 'A' & control group 'C', experimental group 'B' & control group on speed of the ball graphically represented in the figure – I.

Discussion On Findings

The present studies were found statistically significant improvement on speed of ball, which showed that positive effect of combination of speed training plyometric training with video modelling and video feedback and also in the experimental group 'B' had statistically significant improvement on speed of ball, which showed that positive effect of combination of speed training plyometric training without video modelling and video feedback. The findings of the study were also agreed with the findings of Duffield, Carney & Karppinen, (2009) conducted the study on the physiological responses and bowling performance during repeated spells of medium-fast bowling. Worthington, King & Ranson, (2013) evaluated the relationships between fast bowling technique and ball release speed in cricket. Salter, Sinclair & Portus, (2007) conducted the analysed of associations between fast bowling technique and ball release speed: A pilot study of the within-bowler and between- bowler approaches. Pyne, Duthie, Saunders, Petersen & Portus, (2006) determined the study on the anthropometric and strength correlates of fast bowling speed in junior and senior cricketers. Bartlett, Stockill, Elliott & Burnett, (1996) evaluated the analysed of biomechanics of fast bowling in men's cricket. Wickington & Linthorne, (2017) conducted the study on the effect of ball weight on speed, accuracy, and mechanics in cricket fast bowling. Petersen, Wilson & Hopkins, (2004) evaluated the effects of modified-implement training on fast bowling in cricket. McGrath, (2022) analysed the quantifying cricket fast bowling volume, speed and perceived intensity zone using an Apple Watch and machine learning.

Conclusions

These results imply that training programmes for young fast bowlers should concentrate on the improvement of their abilities and technique, with video modelling and video feedback being utilised to carry out more targeted strength and conditioning exercises. This research carried out to find the effects of combining plyometric training for speed with and without video modelling and video feedback for cricket fast bowlers. According to the study's findings, cricket fast bowlers who combined speed training, plyometric training with and without video modelling and video feedback showed a considerable improvement in their speed of the bowling ability. Addition to that according to schefee's post hoc test results, that result proves that combining plyometric training for speed with video modelling and video feedback for cricket fast bowlers had better performance than combining plyometric training for speed without video modelling and video feedback for cricket fast bowlers. However, none of the identified factors had significantly improved for the control group. In addition, these findings bring attention to a number of other facts. For instance, it has been determined and accepted that, in addition to on-the-ground training, such training utilizing cutting-edge technology and digital setup would greatly assist in correcting errors and bringing about positive changes in overall performance. The only thing to keep in mindis that the overall conditions must be controlled and the study's limitations must be minimized. The current study calls for additional research to comprehend the effects of technological tools like virtual reality and three-dimensional analysis.

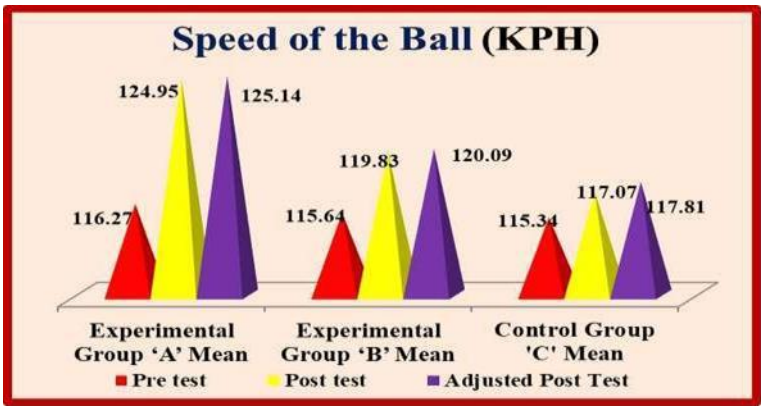

Figure-1: Pre, post and adjusted post -test mean values of both experimental and control groups on speed of bowling

Table-1: Means and Paired Sample-'t' Test for the Pre and Post Tests on Speed of the Bowling of Both Experimental and Control Groups

Criterion Variables	Test	Experimental Group 'A' Mean	Experimental Group 'B' Mean	Control Group Mean
Bowling Speed (in KPH)	Pre test	116.27	115.64	115.34
	Post test	124.95	119.83	117.07
	't'-test	**12.73***	**11.08***	**1.41**

*Significant at .05 level. (Table value required for significance at .05 level for 't'-test with df 11 is 2.20)

Table 2: Analysis of Covariance on Speed of the Bowling of Both Experimental and Control Groups

Test	Experimental Group 'A'	Experimental Group 'B'	Control Group 'C'	SOV	SS	Df	MS	F-ratio
Adjusted Post-Test Mean								
Speed of the Ball	125.14	120.09	117.81	B.M	515.86	2	257.93	57.19*
				W.G	144.32	32	4.51	

* Significant at 0.05 level. Table value for df 2, 32 was 3.32.

Table-3 Scheffe's post hoc test for the differences between paired means on speed of the ball

Mean			Mean Difference	CI
Experimental Group 'A'	Experimental Group 'B'	Control Group 'C'		
125.14	120.09	-	5.05*	2.23
125.14	-	117.81	7.33*	
-	120.09	117.81	2.28*	

References:

[1] Quevedo, L, & Sole, J. (1995). Visual training programme applied to precision shooting. Opthal Physiol Opt., 15: 519-523.
[2] Bandura, "Social Foundation of Thought & Action. A Social Cognitive Theory" 1986 Englewood Cliffs, N g: Practice Hall
[3] Bandura, W. Carroll, Journal of Motor Behavior.1987. Vol 19, No 3 ,385-398
[4] R. Gould, "Modelling and Motor Skill Acquisition .Guest" 1982, VOL. 33(2), PP 214-230
[5] Tali Haim, (2020), SPORT AI, Why technology has a powerful impact on sport today. Available from <https://sportspower.ai/pt/2020/05/26/post-teste-03/ > [28 November 2020]
[6] Bartlett, R., (2007), Introduction to Sports Biomechanics-Analysing Human Movement Patterns, London, Routledge Publications.
[7] SooHoo, S., Takemoto, K.Y. McCullagh, P. A comparison of modeling and imagery on the performance of a motor skill. J. Sport Behav. 2004, 27, 349– 366.
[8] Clark, S., Tremblay, F., & Ste-Marie, D. (2004). Differential modulation of corticospinal excitability during observation, mental imagery and imitation of hand actions. Neuropsychologia, 42(1), 105-112.
[9] Cumming, J., & Williams, S. E. (2012). The role of imagery in performance
[10] Neubert, T., Allin, T. H., Stenbaek-Nielsen, H., & Blanc, E. (2001). Sprites over Europe. Geophysical Research Letters, 28 (18), 3585-3588.
[11] MM, A. K. (2016). Relative effects of combination of speed training plyometric training with and without video modelling on selected performance variables of cricket fast bowlers.