ISSN: 2349 - 4891

International
Journal of Recent Research and Applied Studies
(Multidisciplinary Open Access Refereed e-Journal)

Effect of Varied Capsule of Fitness Training on Wing Shot Shooting among College Level Men Handball Players

L. Sasikumar[1] &Prof. R. Subramanian[2]

[1]*Ph.D Scholar, Tamilnadu Physical Education and Sports University, Chennai, Tamilnadu, India.*
[2]*Former Professor and Head, Department of Advanced Training and Coaching, TNPESU, Chennai, Tamilnadu, India.*

Received 14th May 2020, Accepted 5th June 2020

Abstract

The aim of this study was to find out the effect of varied capsule of fitness training on wing shot shooting among college level men handball players The subjects (n=80) were randomly assigned to four equal groups of twenty handball players in each group. The groups were assigned as Experimental Groups I, II, III and control group respectively. Experimental group I was assigned as Circuit Training Group (CTG), experimental group II was assigned as Interval Training Group (ITG), experimental group III was assigned as Stair Case Training Group (STG) and the control group was strictly under control not involving any special training. Pre and Post tests were conducted for all the subjects on wing jump shot left and wing jump shot right. The scores obtained for wing jump shot right side and wing jump shot left side were summed up and considered as the wing jump shot ability of the player. The experimental groups participated in their respective circuit training, interval training and stair case training for a period of twelve weeks. After the experimental period, the post tests were conducted for all the four groups. The difference between the initial and final scores on wing jump shot ability was considered the effect of respective treatments. The results proved the obtained F value was greater than the required value of 2.77 and hence it was accepted that there was significant differences among the adjusted means on the Wing Shot shooting of the subjects. The paired adjusted mean comparisons proved that the varied capsules of physical training, namely, circuit training, interval training and stair case training were significantly improved wing jump shot ability of handball players compared to control group.. The results further revealed that there were no significant differences among treatment groups. It was concluded that varied fitness training contributed for improvement of wing shot shooting ability of college level handball players.

Keywords: Handball players, Wing Shot Shooting, Circuit Training, Interval Training, Stair Case Training.

Introduction

Handball is all about high speed and precise, quick passing - one of the more high octane sports at the Olympics. The key to success lies in players working together at high speed to move the ball up the court, and they do so much quicker. Handball players are allowed to touch the ball with any part of their bodies above the knee. A player who is in possession of the ball may stand stationary for only three seconds and may only take three steps. They must then either shoot, pass or dribble the ball. At any time taking more than three steps is considered travelling and results in a turnover. After the picked up of the ball, the player has the right to another three seconds or three steps. The ball must then be passed or shot as further holding or dribbling will result in a "double dribble" turnover and a free throw for the other team. The final objective of every attack is to score a goal. Easier said than done, however in the real world one will feel to achieve the objective more often because scoring goals is the most difficult task in handball. To score goals on a regular basis one must be able to execute shooting skills. Under the game pressures of limited time, restricted space, physical fatigue, and aggressive opponents, the success as a goal scorer depends on several factors. One has to prepare himself to take advantage of scoring opportunity by practising shooting skills in situations that stimulate actual game conditions. There are different types of shooting in handball, namely, penalty shot, jump shot right wing and jump shot left wing (www.en.wikipedia.org\wiki\ team_handball).

Jump shot is the most vital offensive skill in handball. This forceful insertion of the ball into opponents goal technique is done either from the right wing or from the left wing. Thus, handball players are typically referred by the position they are playing. The positions are always denoted from the view of the respective goalkeeper, so that a defender on the right opposes an attacker on the left. These typically excel at ball control and wide jumps from the outside of the goal perimeter to get into a better shooting angle at the goal.

Correspondence
Prof. R. Subramanian
E.Mail: *drrstnpesu@gmail.com*

Teams usually try to occupy the left position with a right-handed player and vice versa. Thus, there are two types of jump shots in handball, namely, jump shot right wing and jump shot left wing. The players of right wing would be normally left handed and the players of left wing would be normally right handed. (www.en.wikipedia.org\wiki\team_ handball) jump shot right and jump shot left is considered as wing shooting ability of the handball player in this study.

Every handball player requires a multitude of athletic abilities, such as explosive acceleration and fast sprinting speed; muscular endurance and strength in the lower body; muscular balance and high levels of neuromuscular co-ordination, body awareness and agility, the ability to know where the body is, and be able to move it; good flexibility to avoid injury and correct balance between the quadriceps and hamstrings, as well as strength imbalances between the left and right leg. And the aim of every sportsmen is interested to improve their physical, physiological and psychological and performance levels for which purposes they resorted to different training methods.

There are different types of training methods for the development of physical, physiological and psychological abilities of athletes. Understanding these training methods and the effectiveness of the training methods to suit a particular game and game situations is a challenging task for any coach or player. This helps coaches and athletes prevent injury and overtraining while trying to maximize their physical ability, and analyze the strengths and weaknesses related to their specific training programs. If one failed to establish correct training patterns for young athletes, unfortunately, goes way back.

Anis Chaouachi et.al. (2009) studied anthropometric, physiological, and performance characteristics of an elite international handball team. Strong correlations were noted between single leg horizontal jumping distances with 5-, 10-, and 30-m sprint times (r = 0.51-0.80; P< 0.01). The best predictors of sprint times were single leg horizontal jumping with the dominant leg and the distance measured for the 5-jump test, which when combined accounted for 72% of the common variance associated with sprint ability. It was concluded performance abilities between positions in elite team-handball players appear to be very similar. Oxyzoglou et.al. (2008) documented that high performance in handball depends to a great extent on the motor abilities of all players according to their position in the team. It was found extreme players have a developed level of explosive force and big width of wrist movement. And pivotal players are less flexible but very agile. Every playing position developed specific motor abilities which contribute to team performance. Visnapuu et.al. (2007) reported that in handball and basketball the longer the finger length the better the accuracy of the shot or throw. All shots and throws are finished with the wrist and fingers. It can be proposed that athletes with longer fingers and greater hand surface parameters also probably have greater grip strength and found finger control is especially important for the accuracy of different shots, both in handball and basketball. Schorer et.al. (2007) examined the movement patterns of 5 left-handed handball players (ranging from beginner to national level) who threw a handball to different sections of a goal as if a goalkeeper were present. It was indicated that random variability characterizes novice motor performance, whereas active functional variability may exemplify expert motor performance. The previous researches proved that there were attempts made to find out the shooting ability in handball among different groups, however, the reviews proved that there was further necessaity to find out which type of training improved handball wing shot ability among college level handball players. Hence the investigator was interested to find out the effects of varied capsules of training, namely, circuit training, interval training and stair case training on wing shot shooting of handball players in this study.

Methodology

The study was formulated as a true random group design, consisting of a pre test and post test. The subjects (n=80) were randomly assigned to four equal groups of twenty handball players in each group. The groups were assigned as Experimental Groups I, II, III and control group respectively. Experimental group I was assigned as Circuit Training Group (CTG), experimental group II was assigned as Interval Training Group (ITG), experimental group III was assigned as Stair Case Training Group (STG) and the control group was strictly under control not involving any special training. Pre tests were conducted for all the subjects on wing jump shot left and wing jump shot right. The scores obtained for wing jump shot right side and wing jump shot left side were summed up and considered as the wing jump shot ability of the player. The experimental groups participated in their respective circuit training, interval training and stair case training for a period of twelve weeks. After the experimental period, the post tests were conducted for all the four groups. The difference between the initial and final scores on wing jump shot ability was considered the effect of respective treatments. The obtained data were tabulated and subjected to statistical analysis using ANCOVA. In all cases 0.05 level was fixed to test the significance.

Results

The descriptive statistics comparing the initial and final means of Wing Shot shooting due to varied capsules of fitness training, namely, circuit training, interval training, stair case training and control groups of college level handball players is presented in Table 1.

Table 1. *Descriptive Statistics on Varied capsules of fitness training, namely, Circuit training, Interval training, Stair case training and Control Groups on Wing Jump Shot Shooting*

Groups	**Test**	**Mean**	**Standard Deviation**	**RANGE**	
				Min	**Max**
Circuit training	Initial	9.50	1.57	7.15	12.34
	Final	11.18	1.29	8.45	13.45
	Adjusted Mean	11.35			
Interval training	Initial	10.06	1.17	7.77	11.77
	Final	11.26	1.50	9.18	14.18
	Adjusted Mean	11.07			
Stair case training	Initial	9.91	1.38	7.61	12.40
	Final	11.88	1.27	9.54	14.54
	Adjusted Mean	11.78			
Control Group	Initial	9.59	1.17	7.32	11.55
	Final	9.90	1.17	8.21	11.84
	Adjusted Mean	10.01			

The results on descriptive statistics proved that Wing Shot shooting was improved. And to test statistical significance of the differences, the obtained data on Wing Shot shooting using ANCOVA was presented in Table 2.

Table 2. *Computation of analysis of covariance due to circuit training, interval training and stair case training and control group on wing shot shooting*

	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F
Pre Test Mean	Between	4.10	3	1.37	0.77
	Within	135.18	76	1.78	
Post Test Mean	Between	41.77	3	13.92	8.07*
	Within	131.05	76	1.72	
Adjusted Post Test	Between	34.01	3	11.34	

Mean	Within	70.36	75	0.94	12.09*

Required F(0.05), (df 3,75) =2.77
* Significant at 0.05 level of confidence

Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 3.

Table 3. *Multiple Comparisons between Circuit Training, Interval Training, Stair case training and Control Groups and Scheffe's Post Hoc Analysis on Wing Shot shooting*

Circuit training Group	Interval training Group	Stair case training Group	Control Group	MEAN DIFF	C.I
11.35	11.07			0.28	0.87
11.35		11.78		-0.43	0.87
11.35			10.01	1.34*	0.87
	11.07	11.78		-0.72	0.87
	11.07		10.01	1.06*	0.87
		11.78	10.01	1.77*	0.87

* Significant at 0.05 level.

Discussions

Table 1 shows that the pre test mean on Wing Shot shooting of circuit training group was 9.50 with standard deviation $\pm$ 1.57 pre test mean of interval training group was 10.06 with standard deviation $\pm$ 1.17, the pre test mean of stair case training group was 9.91 with standard deviation $\pm$ 1.38, the pre test mean of control group was 9.59 with standard deviation $\pm$ 1.17. As for post test scores Wing Shot shooting of circuit training group was 11.18 with standard deviation 1.29 post test mean of interval training training group was 11.26 with standard deviation $\pm$ 1.50, the post test mean of stair case training group was 11.88 with standard deviation $\pm$ 1.50, the post test mean of control group was 9.90 with standard deviation $\pm$ 1.17. The adjusted mean on Wing Shot shooting on circuit training group was 11.35, interval training group was 11.07, stair case training group was 11.78 and control group was 10.01.

Taking into consideration of the pre test means and post test means, adjusted post test means were determined and analysis of covariance was done. The obtained F value on adjusted means was 12.09. The obtained F value was greater than the required value of 2.77 and hence it was accepted that there was significant differences among the adjusted means on the Wing Shot shooting of the subjects. The paired adjusted mean comparisons proved that the varied capsules of physical training, namely, circuit training, interval training and stair case training were significantly improved wing jump shot ability of handball players compared to control group.. However, the further revealed that there were no significant differences among treatment gouprs.

Denadai et.al. (2006) The objective of this study was to analyze the effect of two different high-intensity interval training (HIT) programs on selected aerobic physiological indices and 1500 and 5000 m running performance in well-trained runners and found 5000 m running performance can be significantly improved in well-trained runners. Vatromir et.al. (2006) assessed the basic motor abilities that determine top performance in

women's handball and found Motor superiority based on the abilities of coordination, explosive strength and speed determines performance in women's handball. Thus, the previous researches proved that varied capsules of physical training improved strength, vertical jump ability, motor abilities which in turn contributed for wing jump shot performance of handball players. Thus, the findings of this study that varied capsules of fitness training would improve wing jump shot shooting ability was in agreement with the previous researches cited.

Conclusions

It was concluded that varied capsules of fitness training significantly contributed for the improvement of wing jump shot shooting ability of handball players.

References

1. Chaouachi, A. et.al. (2009), "Anthropometric, physiological and performance characteristics of elite team-handball players", Journal of Sports Sciences, 27: 151-157.
2. Denadai et al. (2006) (2005), "Interval training at 95% and 100% of the velocity at VO2 max: effects on aerobic physiological indexes and running performance." Appl. Physiol. Nutr.Metab..Dec;31(6):737.
3. Oxyzoglou et.al. (2008), "Profile of Elite Handball Athletes by Playing Position", http://ejmas.com/pt/2008pt/ptart_ hatzimanouil_ 0806.html.
4. Schorer et.al. (2007), "Identification of interindividual and intraindividual movement patterns in handball players of varying expertise levels.", J Mot Behav. 39(5):409-21
5. Vatromir et.al. (2006), "Physique and Motor Performance of College Women Handball Players", https://qir.kyushu-u.ac.jp/dspace/bitstream/2324/10775/1/ p033.pdf
6. Visnapuu et.al. (2007), "Handgrip strength and hand dimensions in young handball and basketball players", Journal of strength and conditioning research / National Strength &Conditioning Association 21(3):923-9
7. www.en.wikipedia.org\wiki\ team_handball, retrieved on 20th June, 2019.