

# EFFECT OF WEIGHT TRAINING ON SELECTED PHYSIOLOGICAL VARIABLES AMONG COLLEGE LEVEL HANDBALL PLAYERS

**Dr.S.Jayasingh Albert Chanderasear,** Assistant Professor, Department of Physical Education and Sports Sciences, SRM Institute of Science and Technology, College of Science and Humanities, Kattankulathur, Chengalpattu, Tamilnadu, India. jayasins@srmist.edu.in

**Dhanuj Thilakan**, M.Phil Research Scholar, Department of Physical Education and Sports Sciences, SRM Institute of Science and Technology, College of Science and Humanities, Kattankulathur, Chengalpattu, Tamilnadu, India. dhanujthilakan1996@gmail.com

ABSTRACT- Study aim: the aim of the study was examine weight training is a full-body workout that promotes physiological variables among college level men handball players. It provides with extraordinary benefits. It improves overall skills. It improves physiological functioning and strengthens the overall body capacity of men handball players. *Materials and methods:* Therefore the purpose of the study was to examine the effect of weight training exercises on selected physiological variables of college level men handball players. To achieve the purpose of the study college level handball players participated were randomly selected from in and around Kerala, and their age was ranged between 17 to 23 years. The subjects were randomly assigned into two equal groups (n=15). All the subjects were divided in to two groups with 15 subjects each as experimental and control group. Group-I underwent weight training exercises for a period of 6 weeks and group-II acted as control who did not participate in any special training other than the regular routine. The Physiological variables such as systolic blood pressure , diastolic blood pressure and Body mass index were selected as dependent variables. systolic blood pressure, diastolic blood pressure was tested Citizen make digital B.P monitor unit measurement in mm Hg. The dependent 't' test was applied to determine the difference between the means of two groups. To find out whether there was any significant difference between the experimental and control groups. To test the level of significant of difference between the means 0.05 level of confidence was fixed. *Results:* The result of the study shows that, there was a significant improvement takes place on systolic blood pressure, diastolic blood pressure of college level men handball players. *Conclusions:*Improved of systolic blood pressure, diastolic blood pressure after regular weight training exercises is beneficial for college level men handball players. Therefore weight training exercises covered in this study are beneficial for the handball players.

Keywords: Weight Training, Physiological Variables, Handball Players.

# I. INTRODUCTION:

The physiological, physical, and anthropometric profiles of elite and sub-elite handball players have received little attention in the literature. Profiling can be a valuable tool for identifying talent, strengths and weaknesses, assigning player positions, and assisting in the design of optimal strength and conditioning programs. Several studies in sports such as rugby (Gabbett, 2002, 2006; Meir, Newton, Curtis, Fardell, & Butler, 2002), soccer (Casajus, 2001; Vescovi, Brown, & Murray, 2006), Australian Rules football (Pyne, Gardner, Sheehan, & Hopkins, 2006; Young & Pryor, 2007) and American football (Garstecki, Latin, & Cuppett, 2004; McGee & Burkett, 2003). However, the majority of these studies focused on team sports with large playing fields. When compared to other "big playing field" sports, elite male handball players who play indoors on a small court may be more homogeneous as a group. There have been no studies on position-specific physiological or physical characteristics in elite handball players in the last 15 years. Keeping this in mind, the primary goal of this research was to profile the physiological, physical, and performance characteristics of elite handball players for various playing positions. Although handball is an intermittent sport that primarily utilizes aerobic metabolism, anaerobic actionssuch as throwing, jumps, sprints, changes of direction, duels and contacts are involved in both counter-attacks, attack build-up phasesand defenceplayto score or avoid goals. Technical and physical on-court demands vary with respect to playing positions. Wings accomplishthe highest amounts of high-intensity running/sprinting than their co-players but are involved in fewer one-on-one duels. Pivotscover less distance but are more involved in physical duels and contacts, while backs shoot and pass significantlymore comparedto the other positions(Gorostiaga, Granados, Ibarez, Gonzalez-Badillo, &Izquierdo, 2006; Gorostiaga, Granados, Ibarez, &Izquierdo, 2005). To the best of our knowledge, no previous research has investigated the effects of weight training on selected physical fitness variables among college level handball players.

# II. METHODS:

The purpose of the study was to find out the effects of weight training on selected physiological variables among college level men handball players. To achieve the purpose of the study, thirty college level handball players were selected from in and around Kerala. The subjects were randomly assigned in to two equal groups namely, Weight training group (WTG) (n=15) and Control group (CG) (n=15). A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load. The respective training was given to the experimental group the 5 days per weeks (alternate days) for the training period of six weeks. The control group was not given any sort of training except their routine.Design:The Physiological variables such as Systolic blood pressure, Diastolic blood pressure and Body mass index were selected as dependent variables. Systolic blood pressure, Diastolic blood pressure was tested Citizen make digital B.P monitor unit measurement in mm Hg.

#### III. STATISTICAL ANALYSIS:

The collected data before and after training period of 6 weeks on the above said variables due to the effect of Weight training was statistically analyzed with dependent 't' test to find out the significant improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. (P<0.05)

#### Table - I

# MEAN, STANDARD DEVIATION AND MEAN DIFFERENCE OF THE GROUPS AND THE "t" TEST OF THE CONTROL GROUP AND THE EXPERIMENTAL GROUP FOR BLOOD PRESSURE (SYSTOLIC)

Group	Test	N	Mean	SD	MD	Т
Control	Pre Test	15	146.12	14.99	3.67	0.20
	Post Test	15	142.46	16.36		
Experimental	Pre Test	15	160.46	12.19	- 24.4	7.70*
	Post Test	15	145.06	5.79		

\*Significant at 0.05 level of confidence

't' ratio at 0.05 level of confidence for the degree of freedom (df) at 28=2.048

The table I shows that the pre test means of control group and experimental group were 146.12and 160.46 respectively. The pre test standard deviation of the control group and the experimental group were 14.99 and 12.19 respectively. Table I shows that the post test means of the control group and the experimental group were 142.46 and 145.06 respectively. The post test standard deviation of the control group and the experimental group were 16.36 and 5.79 respectively. Table I shows that the pre test mean and the experimental group were 3.67 and 24.4 respectively. Table I shows that the pre test mean and the post test mean of the experimental group were 160.46 and 145.06 respectively. The standard deviation of the pre test and the post test of the experimental group were 12.19 and 5.79 respectively.

The obtained 't' value 7.70 of the experimental group with respect to the blood pressure(systolic) levels was significantly higher than the required 't' value (2.021) and it is proven that there is a significant difference in the blood pressure(systolic) levels of the experimental group.

#### Table - II

Group	Test	Ν	Mean	SD	MD	Т		
Control	Pre Test	15	80.6	6.67	1.74	0.02		
	Post Test	15	78.86	4.62				
	Pre Test	15	82.26	1.33				
Experimental	Post Test	15	80.93	1.74	1.33	5.60*		

# MEAN, STANDART DEVIATION AND MEAN DIFFERENCE OF THE GROUPS AND THE 't' TEST OF THE CONTROL GROUP AND THE EXPERIMENTAL GROUP FOR BLOOD PRESSURE (DIASTOLIC)

\*Significant at 0.05 level of confidence

"t' ratio at 0.05 level of confidence for the degree of freedom (df) at 28=2.048

Table II shows that the pre test means of control group and the experimental group were 80.6 and 82.26 respectively. The pre test standard deviation of the control group and the experimental group were 6.67 and 1.33 respectively. Table II shows that the post test means of control group and the experimental group were 78.86 and 80.93 respectively. The post test standard deviation of the control group and experimental group were 4.62 and 1.74 respectively. The mean difference between the control group and the experimental group were 1.74 and 1.33 respectively, Table II shows that the pre test mean and the post test mean of the experimental group were 82.26 and 80.93 respectively. The standard deviation of the pre test and post test of the experimental group were 1.33 and 1.74 respectively.

The obtained 't' value 5.60 of the experimental group with respect to the blood pressure (diastolic) levels was significantly higher than the required 't' value (2.048) and it is proven that there is a significant difference in the blood pressure (diastolic) levels of the experimental group.

# IV. DISCUSSION ON FINDINGS:

The findings of this study on systolic blood pressure are consistent with those of Peter Lang's study (1997). The findings of this study on diastolic blood pressure are consistent with the findings of R.K.Wallace's study (1992). The findings of this BMI study are consistent with those of Bijalani's study (2000).

# V. CONCLUSION:

It was concluded that the experimental group's Systolic/Diastolic Blood Pressure improved significantly when compared to the control group.

# **REFERENCE:**

- 1. Alexander, M. J., &Boreskie, S. L. (1989). An analysis of fitnessand time-motion characteristics of handball.AmericanJournalof Sports Medicine,17, 76–82.
- 2. Bayios, I. A., Anastasopoulou, E. N., Sioudris, D. S., &Boudolos,K. D. (2001). Relationship between isokinetic strength of theinternal and external shoulder rotators and ball velocity in teamhandball.Journal of Sports Medicine and Physical Fitness,1, 229–235.
- 3. Soltani M, Baluchi MJ, Boullosa D, Daraei A, Govindasamy K, Dehbaghi KM, Mollabashi SS, Doyle-Baker PK, Basati G, Saeidi A, Zouhal H. Endurance training intensity has greater effects than volume on heart rate variability and arterial stiffness adaptations in sedentary adult men: A Randomized Controlled Trial.

- 4. Bouhlel, E., Bouhlel, M., Chelly, S., &Tabka, Z. (2006).Relationship between maximal anaerobic power measured byforce–velocity test and performance in the counter movementjump and in the 5-jump test in moderately trained boys.Scienceand Sports,21, 1–7.
- 5. Casajus, J. A. (2001). Seasonal variation in fitness variables inprofessional soccer players. Journal of Sports Medicine and Physical Fitness, 41, 463–469.
- 6. Chamari, K., Chaouachi, A., Hambli, M., Kaouech, F., Wisslof, U., &Castagna, C. (2008). The 5-jumps for distance as a fieldtest to assess lower limbs explosive-power in soccer. Journal of Strength and Conditioning Research, 22, 944–950.
- 7. Anitha J, Kumaravelu P, Lakshmanan C, Govindasamy K. Effect of plyometric training and circuit training on selected physical and physiological variables among male Volleyball players. International Journal of Yoga, Physiotherapy and Physical Education. 2018;3(4):26-32.
- 8. Hermassi S, Chelly MS, Michalsik LB, Sanal NE, D. Hayes L, Cadenas-Sanchez C. Relationship between fatness, physical fitness, and academic performance in normal weight and overweight schoolchild handball players in Qatar State. Plos one. 2021 Feb 19;16(2):e0246476.
- 9. Aloui G, Hermassi S, Hayes LD, Shephard RJ, Chelly MS, Schwesig R. Effects of Elastic Band Plyometric Training on Physical Performance of Team Handball Players. Applied Sciences. 2021 Jan;11(3):1309.
- 10. Ruscello B, Castagna C, Carbonaro R, Gabrielli PR, D'Ottavio S. Fitness profiles of elite male Italian teams handball players. The Journal of Sports Medicine and Physical Fitness. 2022 Jan 22.