



ISSN: 2456-0057
IJPNPE 2019; 4(1): 1255-1258
© 2019 IJPNPE
www.journalofsports.com
Received: 19-11-2018
Accepted: 21-12-2018

M Gokul Raj
M. Phil, Research Scholar,
SRMIST, Chennai, Tamil Nadu,
India

Dr. R Mohanakrishnan
HOD, Assistant Professor,
SRMIST, Chennai, Tamil Nadu,
India

Effect of interval training physical and physiological variables among volleyball players

M Gokul Raj and Dr. R Mohanakrishnan

Abstract

For purpose of these study 30 male volleyball players were selected from Alagappa model higher secondary school, Karaikudi. Random group design was used. The subject's age ranged from 14 to 19 years. The subjects were divided in two groups namely experimental group (Group-I) and control group (Group-II). Experimental group underwent interval training and Control group did not consider for any specific training.

To carry out the study the investigator used two groups, one experimental group and one control group, each group consists of 15 subjects. All the groups were tested on selected criterion variable and the readings were recorded in their respective unit, as pre-test scores. After pre-test the experimental group was treated with interval training for a period of six weeks. After six weeks of training both the groups were tested again on the selected criterion variables and the scores were recorded in their respective units as post test scores. The pre and post-test were taken for analysis.

The researcher used t-ratio to find the significant difference between the means of pre-test and post-test of all the selected variables.

Keywords: Interval Training, Physical, Physiological, Volleyball

Introduction

Sports have become as competitive as other fields in the world. In ancient times, our ancestors exhibited the extraordinary talents in terms of physical activity. But now it has become completely professional. Somehow or other irrespective of age the human race is involved in different kinds of sports either for recreation or competition. In the present world, Sports have become extremely competitive. It is not mere participation or practice that makes an individual victorious. Sports life is affected by various factors like physiology, biomechanics, sports training, sports medicine, sociology and coaching, computer application and psychology and so on.

To achieve top level performance in the international arena one has to have a plan and systematic execution. To win medals, in the Olympics, there should be spotting of talent, systematic and scientific method of training, competitive exposure, etc. It is not only because of training, but also because of psychological, and physiological aspects that goals are achieved. The experts in the field of sports have put their mind into it and made tremendous efforts to find out ways and means to achieve top-level performance. During this Olympic season, one may hear from announcers, critics, commentators and even athletes that the Olympic Games are too commercial, too political, and too "professional," and that judging too is nationalistic.

It is easy to assume that the ancient Olympic Games were different, that ancient Greek athletes were pure in mind and body, and that they trained and competed for no other reason than the love of physical exercise, fair competition and to honor their gods. In modern Olympics sports ideology has been totally changed. It is not to participate in the Olympics to honor their Gods, nor for love of physical exercise, but only to win medals that players compete.

Statement of the Problem

The purpose of the study was to find out the effect of interval training on selected physical and physiological variables among school male volley ball players.

Correspondence

M Gokul Raj
M. Phil, Research Scholar,
SRMIST, Chennai, Tamil Nadu,
India

Hypothesis

1. It was hypothesized that there will be a significant difference in physical fitness variables between school volleyball players.
2. It was further hypothesized that the experimental group may be better than Control group.

Delimitations

1. For this purpose of this study 30 male volleyball players were selected from Alagappa model higher secondary school, –Karaikudi.
2. The age of the subject ranged from 14-17years.
3. The selected variables are Speed, Arm power, Flexibility, Agility, Resting heart rate, breathe holding time.
4. The training program is delimited to 6 weeks

Methodology

Selection of the subjects

To achieve the purpose of this study 30 male school level volleyball players were selected from Alagappa model Hr, Sec, School- Karaikudi. Random group design was used. The subject’s age ranged from 14 to 17 years. The subjects were divided in two groups namely experimental group (Group-I) and control group (Group-II). Experimental group underwent interval training and Control group did not considered for any specific training.

Table 3.1: Selection of Variables/Test

S. No	Variables	Test Items
1	Speed	50mts dash
2	Arm Power	Push ups
3	Flexibility	Sit and reach
4	Agility	Shuttle run
5	Resting heart rate	Beat per minutes
6	Breath holding time	Timing

Analysis of Data and Interpretation of the Study

Findings

The mean difference between the pre and posttest of the control and experimental groups was tested by correlated ‘t’ ratio to find the significant of the difference between the experimental and control group after the experimental period of six weeks.

The mean difference between the experimental and control group after six weeks of training was tested by ‘t’ ratio and determined the significance of the difference

Table 1: Computation of ‘t’ Ratio between the Pre and Post Test Mean Values of Speed of Control Group

Group	Mean	md	SD	SD Error	df	‘t’ Ratio	Table Value
Pre test	8.31	0.04	0.12	0.03	14	1.70	2.15
Post test	8.35		0.14	0.03			

Insignificance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.1 shows that the obtained mean values of pretest and posttest were 8.31, 8.35 respectively. The standard deviations were 0.12 and 0.14 and mean difference is 0.04; the obtained ‘t’ ratio is 1.70; the required table value is 2.15; insignificance at 0.05 level. The obtained ‘t’ ratio is lesser than the table value. It is found to be insignificant.

Table 2: Computation of ‘t’ Ratio between the Pre and Post Test Mean Values of Speed of Experimental Group

Group	Mean	Md	SD	SD Error	df	‘t’ Ratio	Table Value
Pre test	8.20	1.39	0.16	0.04	14	10.48*	2.15
Post test	6.81		0.44	0.11			

*Significance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.2 shows that the obtained mean values of pretest and posttest were 8.20, 6.81 respectively. The standard deviations were 0.16 and 0.44 and mean difference is 1.39; the obtained ‘t’ ratio is 10.48; the required table value is 2.15; significance at 0.05 level. The obtained ‘t’ ratio is greater than the table value. It is found to be significant.

Table 3: Computation of ‘t’ Ratio between the Pre and Post Test Mean Values of Arm Power of Control Group

Group	Mean	Md	SD	SD Error	df	‘t’ Ratio	Table Value
Pre test	18.06	0.86	1.58	0.40	14	1.71	2.15
Post test	17.20		1.82	0.47			

Insignificance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.3 shows that the obtained mean values of pretest and posttest were 18.06, 17.20 respectively. The standard deviations were 1.58 and 1.82 and mean difference is 0.86; the obtained ‘t’ ratio is 1.71; the required table value is 2.15; insignificance at 0.05 level. The obtained ‘t’ ratio is lesser than the table value. It is found to be insignificant.

Table 4: Computation of ‘t’ Ratio between the Pre and Post Test Mean Values of Arm Power of Experimental Group

Group	Mean	Md	SD	SD Error	df	‘t’ Ratio	Table Value
Pre test	18.33	6.33	1.54	0.40	14	6.20*	2.15
Post test	24.66		2.79	0.72			

*Significance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.4 shows that the obtained mean values of pretest and posttest were 18.33, 24.66 respectively. The standard deviations were 1.54 and 2.79 and mean difference is 6.33; the obtained ‘t’ ratio is 6.20; the required table value is 2.15; significance at 0.05 level. The obtained ‘t’ ratio is greater than the table value. It is found to be significant.

Table 5: Computation of ‘t’ Ratio between the Pre and Post Test Mean Values of Flexibility of Control Group

Group	Mean	Md	SD	SD Error	df	‘t’ Ratio	Table Value
Pre test	15.93	0.80	2.19	0.56	14	1.11	2.15
Post test	15.13		1.78	0.46			

Insignificance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.5 shows that the obtained mean values of pretest and posttest were 15.93, 15.13 respectively. The standard deviations were 2.19 and 1.78 and mean difference is 0.80; the obtained ‘t’ ratio is 1.11; the required table value is 2.15; insignificance at 0.05 level. The obtained ‘t’ ratio is lesser than the table value. It is found to be insignificant.

Table 6: Computation of ‘t’ Ratio between the Pre and Post Test Mean Values of Flexibility of Experimental Group

Group	Mean	Md	SD	SD Error	Df	‘t’ Ratio	Table Value
Pre test	15.86	5.34	1.81	0.47	14	5.77*	2.15
Post test	21.20		2.60	0.67			

*Significance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.6 shows that the obtained mean values of pretest and posttest were 15.86, 21.20 respectively. The standard deviations were 1.81 and 2.60 and mean difference is 5.34; the obtained 't' ratio is 5.77; the required table value is 2.15; significance at 0.05 level. The obtained 't' ratio is greater than the table value. It is found to be significant.

Table 7: Computation of 'T' Ratio between the Pre and Post Test Mean Values of Agility of Control Group

Group	Mean	Md	SD	SD Error	df	't' Ratio	Table Value
Pre test	15.19	0.23	0.35	0.09	14	1.53	2.15
Post test	15.42		0.63	0.16			

Insignificance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.7 shows that the obtained mean values of pretest and posttest were 15.19, 15.42 respectively. The standard deviations were .35 and .63 and mean difference is 0.23; the obtained 't' ratio is 1.53; the required table value is 2.15; insignificance at 0.05 level. The obtained 't' ratio is lesser than the table value. It is found to be insignificant.

Table 8: Computation of 't' Ratio between the Pre and Post Test Mean Values of Agility of Experimental Group

Group	Mean	Md	SD	SD Error	df	't' Ratio	Table Value
Pre test	14.93	3.74	0.45	0.11	14	16.75*	2.15
Post test	11.19		1.00	0.26			

*Significance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.8 shows that the obtained mean values of pretest and post test were 14.93, 11.19 respectively. The standard deviations were 0.45 and 1.00 and mean difference is 3.74; the obtained 't' ratio is 16.75; the required table value is 2.15; significance at 0.05 level. The obtained 't' ratio is greater than the table value. It is found to be significant.

Table 9: Computation of 't' Ratio between the Pre and Post Test Mean Values of Resting Heart Rate of Control Group

Group	Mean	Md	SD	SD Error	df	't' Ratio	Table Value
Pre test	73.73	0.60	1.98	0.51	14	0.62	2.15
Post test	74.33		2.79	0.72			

Insignificance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.9 shows that the obtained mean values of pretest and posttest were 73.73, respectively. The standard deviations were 1.98 and 2.79 and mean difference is 0.60; the obtained 't' ratio is 0.62; the required table value is 2.15; insignificance at 0.05 level. The obtained 't' ratio is lesser than the table value. It is found to be insignificant.

Table 10: Computation of 't' Ratio between the Pre and Post Test Mean Values of Resting Heart Rate of Experimental Group

Group	Mean	Md	SD	SD Error	df	't' Ratio	Table Value
Pre test	73.46	4.93	1.60	0.41	14	8.05*	2.15
Post test	68.53		1.77	0.46			

*Significance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.10 shows that the obtained mean values of pretest and posttest were 73.46, 68.53 respectively. The standard deviations were 1.60 and 1.77 and mean difference is 4.93; the obtained 't' ratio is 8.05; the required table value is 2.15; significance at 0.05 level. The obtained 't' ratio is greater than the table value. It is found to be significant.

Table 11: Computation of 't' Ratio between the Pre and Post Test Mean Values of Breath Holding Time of Control Group

Group	Mean	Md	SD	SD Error	df	't' Ratio	Table Value
Pre test	15.11	0.80	0.21	0.05	14	2.09	2.15
Post test	14.31		1.47	0.38			

Insignificance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.11 shows that the obtained mean values of pretest and posttest were 15.11, 14.31 respectively. The standard deviations were 0.21 and 1.47 and mean difference is 0.80; the obtained 'T' ratio is 2.09; the required table value is 2.15; insignificance at 0.05 level. The obtained 'T' ratio is lesser than the table value. It is found to be insignificant.

Table 12: Computation of 't' Ratio between the Pre and Post Test Mean Values of Breath Holding Time of Experimental Group

Group	Mean	Md	SD	SD Error	df	't' Ratio	Table Value
Pre test	15.07	1.74	0.19	0.05	14	8.90*	2.15
Post test	16.81		0.81	0.20			

*Significance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.12 shows that the obtained mean values of pretest and post test were 15.07, 16.81 respectively. The standard deviations were 0.19 and .81 and mean difference is 1.74; the obtained 't' ratio is 8.90; the required table value is 2.15; significance at 0.05 level. The obtained 't' ratio is greater than the table value. It is found to be significant.

Discussion on Findings

The investigator had a through and vision that interval training would improve school male volleyball players speed, power, flexibility, agility, resting heart rate and breath holding time which in turn would help them to playing better. The investigator selected exercises that are interval training for school male volleyball players. To perform exercise the school male volleyball players should have better physical and physiological variables. It is a matter of interest how far interval training improve the school male volleyball players. The statistical values presented in Table 2, 4, 6, 8, 10 and 12 proved that there was a significant improvement in selected physical and physiological variables among school male volleyball players due to interval training. Obtained 't' value of speed is 10.48, Arm power is 6.20, flexibility is 5.77, agility is 16.75, resting heart rate is 8.05 and breath holding time is 8.90 respectively which is greater than the required 't' value to be significant. For the degrees of freedom 2.14 at 0.05 level of confidence. Thus the hypothesis of this study that there would be significant improvement due to interval training on selected physical and physiological variables among school male volleyball players was accepted at 0.05 level of confidence.

Summary

To achieve the purpose of these study 30 male volleyball players were selected from Alagappa model higher secondary school, Karaikudi. Random group design was used. The subject's age ranged from 14 to 17 years. The subjects were divided in two groups namely experimental group (Group-I) and control group (Group-II). Experimental group underwent interval training and Control group did not considered for any specific training.

To carry out the study the investigator used two groups, one

experimental group and one control group, each group consists of 15 subjects. All the groups were tested on selected criterion variable and the readings were recorded in their respective unit, as pre-test scores. After pre-test the experimental group was treated with interval training for a period of six weeks. After six weeks of training both the groups were tested again on the selected criterion variables and the scores were recorded in their respective units as post test scores. The pre and posttest were taken for analysis.

The researcher used t-ratio to find the significant difference between the means of pre test and post test of all the selected variables.

Conclusion

Based on the results of the present study the following conclusions have been school boys.

1. Results on testing the differences on pre-test means between experimental and control groups, no difference was found on variables used in the study namely speed, armpower, flexibility, agility, resting heart rate and breath holding time.
2. On testing the post-test means between experimental and control groups, significant mean difference was found on variables used in the study.
3. In the view of maximize the treatment variance, the collected data were tested by T-ratio used.

Reference

1. Lanhers C. Creatine Supplementation and Upper Limb Strength Performance: A Systematic Review and Meta-Analysis. *Sports Med.* 2017; 47(1):163-173. doi:
2. 10.1007/s40279-016-0571-4. Review. PubMed PMID: 27328852.
3. Draghici AE. The physiological basis and measurement of heart rate variability in humans. *J Physiol Anthropol.* 2016; 28;35(1):22. Review. PubMed PMID: 27680542; PubMed Central PMCID: PMC5039876.
4. *Biol Res Nurs.* 2015; 17(1):100-11. doi: 10.1177/1099800414531448. Epub 2014 May
5. Hoffmann JJ, Jr. *Int J Sports Physiol Perform.* 2014; 9(2):352-7. doi: 10.1123/ijsp.2013- 0189. Epub 2013 May 22. Review. PMID: 23751941.
6. Moraes Ferrari GL. Cardiorespiratory fitness and nutritional status of schoolchildren: 30-year evolution. *J Pediatr (Rio J).* 2013; 89(4):366-73. doi: 10.1016/j.jped.2012.12.006. Epub 2013 Jun 20. Pub Med PMID: 23791022.
7. Baldari C. Different (V) over dotO(2max) Time-Averaging Intervals in Swimming, 2012. DOI [10.1055/s0032-1321804, DOI 10.1055/S-0032-1321804];2012.
8. Celis-Morales CA. Effect of sprint interval training and resistance exercise on metabolic markers in overweight women; *PLOS ONE*, 2011, 6. DOI 10.1371/journal.pone.0024690.
9. Eliakim A. Interval training and the GH-IGF-I axis - a new look into an old trainingregimen; *MED SPORT SCI*, 2010; 55:128.
10. de Salles BF. Rest interval between sets in strength training. *Sports Med.* 2009; 39(9):765-77. Review. PubMed PMID: 1969136