Influence of Resistance Training with Soccer Skill Practices on Physiological Variables among Soccer Players

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Abstract

   The purpose of the study was to find out the influence of resistance training with soccer skill practices on physiological variables among soccer players. To achieve the purpose of the study, forty college men soccer players who participated in the intramural tournament during the academic year 2013 – 2014 were randomly selected as subjects from Meenakshi College of Engineering, Chennai. The age of the subjects ranged from 18 to 24 years. The subjects were attached at random to one of the two groups in which group I (N=20) underwent plyometric training with soccer skill practices, group II (N=20) acted as control group. The subjects were free to withdraw their consent in case they felt any discomfort during the period of training. However there were no dropouts in the study. A qualified physician examined the subjects medically and declared that they were fit to participate in the training programme for the study. The selected subjects' age, height and weight ranged from 18 years 6 months to 24 years 3 months, 148cms to 165cms and 49 kgs to 66 kgs respectively. The subjects in all the two groups were tested on selected criterion variables such as recovery pulse rate, systolic and diastolic blood pressure were assessed by stethoscope and sphygmomanometer respectively prior to (pre test),after six weeks (mid test)and after twelve weeks (post test) of training except those of control group who did not participate in any special training. The pre ,mid and post test data collected from two groups on the dependent variables were statistically examined for significant differences, if any, by applying the One Way Repeated Measures ANOVA. Among each training, to find out which of the three paired means (pre, mid and post) had a significant difference, the New man keuls post – hoc test was applied. Resistance training with soccer skill practices had significantly improved physiological variables for 12 weeks among college soccer players. The result indicated, though resistance training significantly decreased recovery pulse rate, systolic blood pressure and diastolic blood pressure of soccer players between the 1st week 6th and 12th week.

Keywords: Resistance, Skill Practices, Soccer, Physiological.

Introduction

   The history of modern day soccer was established in 1863. In October 1863, eleven representatives from London clubs and schools met at the Freemason's Tavern to set up common fundamental rules to control the matches amongst themselves. The outcome of this meeting was the formation of the Football Association. In December 1863, the Rugby Football and Association football finally split as the supporters of the Rugby School rules walked out. Firmly establishing the foundation of soccer in 1869, the Football Association strictly banned any kind of handling of the ball. Soccer's popularity spread rapidly during the 1800s as British sailors, traders and soldiers introduced the sport to different parts of the globe. Italians, Austrians and Germans drew to Europe, while Argentina, Uruguay and Brazil adopted the sport in South America. FIFA was established in the year 1904 and by early 1930, different leagues were operating from various countries. FIFA is credited with organizing the first world cup in Uruguay. The history of soccer is rich with events, development and its growing craze all over the world (Jezek, 2014).

   Resistance exercise can benefit your body in many ways. It can bring about an increase in the levels of high-density lipoprotein, or good cholesterol, and this will contribute to better cardiovascular health. It also affects your body composition in a positive way. Since muscles can burn calories, an increase in muscle mass will reduce body fat and enhance your metabolic rate. As such, resistance exercise is an effective way to lose and maintain weight. It is also known that resistance exercise can increase the amount of bone minerals in your body, and this can make you less susceptible to osteoporosis. If you are above the age of 35, your body will experience gradual loss of muscle mass, and you will become weaker as you grow older. If you perform resistance

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exercise on a regular basis, you can slow down the loss of muscle mass. In a study, men and women who were in their 70s and 80s underwent resistance training for 10 weeks, and researchers noticed that their muscle strength, agility and mobility had increased dramatically after the training. Many physicians order their elderly patients to do resistance exercise at least two times a week. Studies have also shown that resistance exercise may be more effective than aerobic exercise in improving body image and self esteem. One reason for this is that resistance training provides more immediate results. After training for a short period of time, you will notice that your muscles have grown and become more toned.

Methodology

The purpose of the study was to find out the influence of resistance training with soccer skill practices on physiological variables among soccer players. To achieve the purpose of the study, forty college men soccer players who participated in the intramural tournament during the academic year 2013 – 2014 were randomly selected as subjects from Meenakshi College of Engineering, Chennai. The age of the subjects ranged from 18 to 24 years. The subjects were attached at random to one of the two groups in which group I

(N=20) underwent resistance training with soccer skill practices, group II (N=20) acted as control group. The subjects were free to withdraw their consent in case they felt any discomfort during the period of training. However there were no dropouts in the study. A qualified physician examined the subjects medically and declared that they were fit to participate in the training programme for the study. The selected subjects' age, height and weight ranged from 18 years 6 months to 24 years 3 months, 148cms to 165cms and 49 kgs to 66 kgs respectively. The subjects in all the two groups were tested on selected criterion variables such as recovery pulse rate, systolic and diastolic blood pressure were assessed by stethoscope and sphygmomanometer respectively prior to (pre test),after six weeks (mid test)and after twelve weeks (post test) of training except those of control group who did not participate in any special training. The pre ,mid and post test data collected from two groups on the dependent variables were statistically examined for significant differences, if any, by applying the One Way Repeated Measures ANOVA. Among each training, to find out which of the three paired means (pre, mid and post) had a significant difference, the New man keuls post – hoc test was applied.

Results

Table I. One way repeated measures ANOVA on selected variables of pre, mid and post tests of resistance training group

Group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained 'F'-ratio
Recovery pulse rate	Between	2918.433	2	2918.433	76.705*
	Error	722.900	38	19.024	
Systolic blood pressure	Between	168.100	2	168.100	155.295*
	Error	20.567	38	0.541	
Diastolic blood pressure	Between	148.900	2	148.900	101.888*
	Error	27.767	38	0.731	

* Significant at 0.05 level. The table value required for significance at 0.05 level with df 2 and 38 is 3.24.

Table I shows that the obtained F-ratio values of resistance training group on all the selected variables were 76.705, 155.295 and 101.888 greater than the table value of 3.24 with df 2 and 38 required for significance at 0.05 level of confidence. The results of the study

indicate that there was significant difference among the means of three tests at different time period for resistance training group on selected variables. To find out which of the three paired means had a significant difference, the Newman Keuls post hoc test was applied and the results are presented in Table II to IV.

Table II. Newman keuls test for the differences between treatment means on recovery pulse rate of resistance training group

Means		Ordered Means			Range (r)	Critical Value
		Post test	Mid test	Pre test		
		55.30	47.70	38.25		
Post Test	55.30	-	7.60*	17.05*	3	4.28
Mid Test	47.70	-	-	9.45*	2	3.73
Pre Test	38.25	-	-	-	-	-

*Significant at 0.05 level.

Figure I. Bar diagram on recovery pulse rate
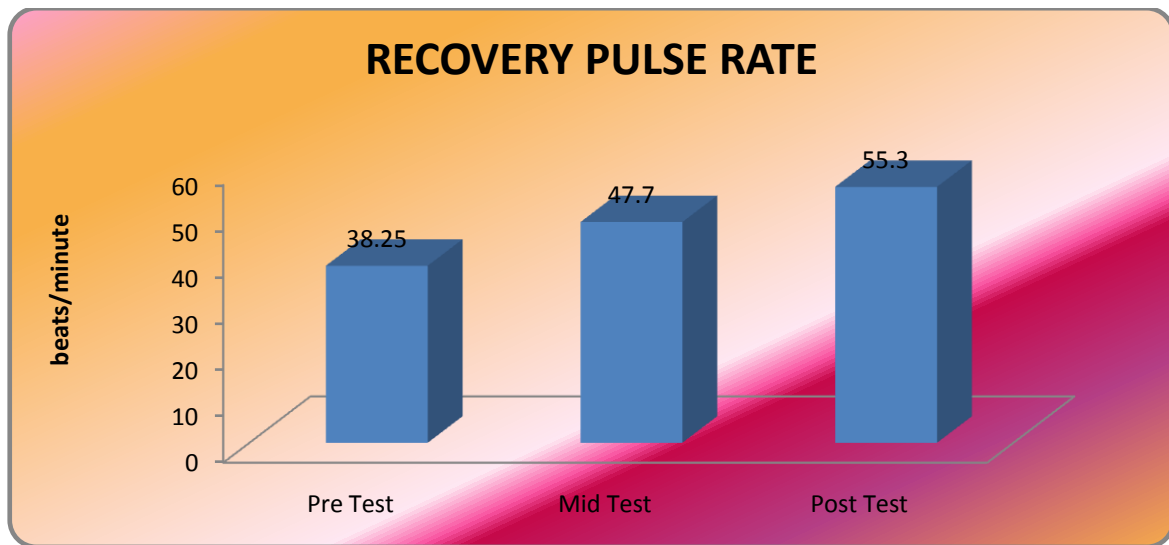
Table III. Newman keuls test for the differences between treatment means on systolic blood pressure of resistance training group

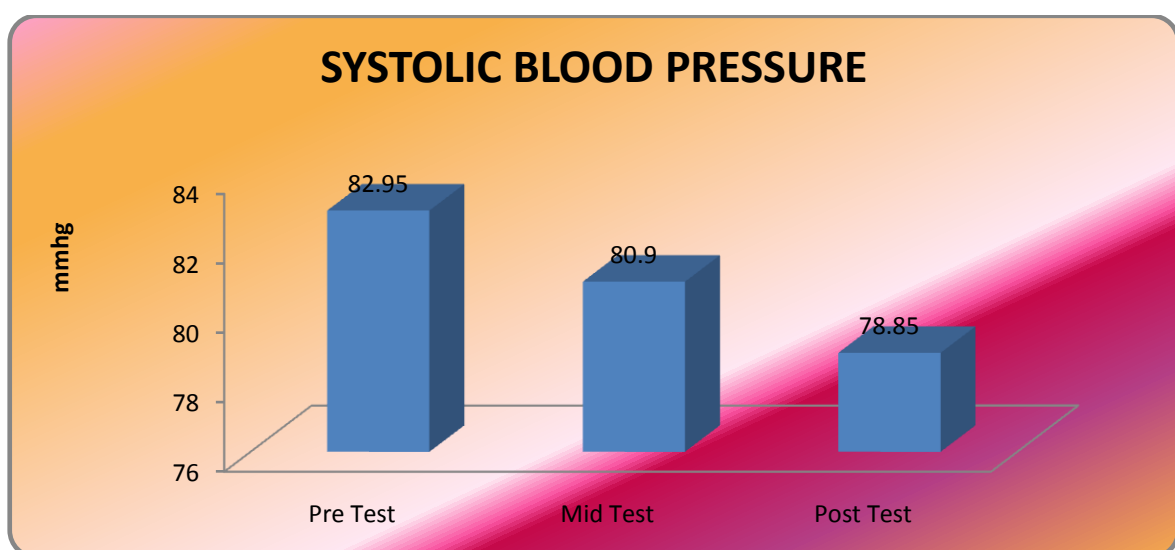| Means		Ordered Means			Range (r)	Critical Value
		Post test	Mid test	Pre test		
		78.85	80.90	82.95		
Post Test	78.85	-	2.05*	4.10*	3	0.72
Mid Test	80.90	-	-	2.05*	2	0.62
Pre Test	82.95	-	-	-	-	-

*Significant at 0.05 level.

Figure II. Bar diagram on sytolic blood pressure

Table IV. Newman keuls test for the differences between treatment means on diastolic blood pressure of resistance training group

| Means		Ordered Means			Range (r)	Critical Value
		Post test	Mid test	Pre test		
		119.15	120.85	123.00		
Post Test	119.15	-	1.70*	3.85*	3	0.83
Mid Test	120.85	-	-	2.15*	2	0.73
Pre Test	123.00	-	-	-	-	-

*Significant at 0.05 level.

Figure III. Bar diagram on diastolic blood pressure
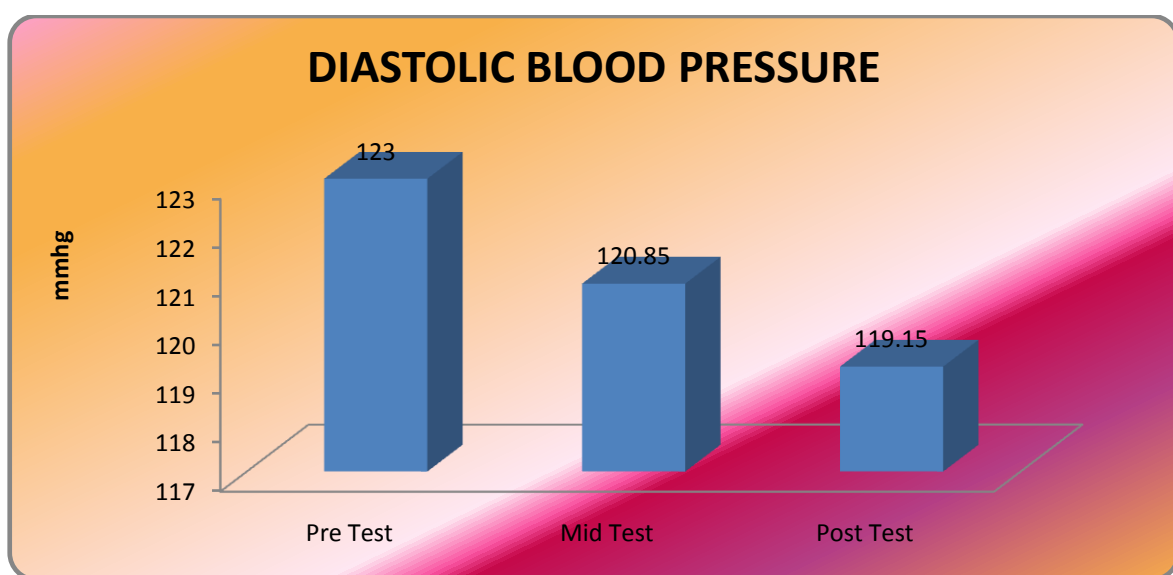
Table V. One way repeated measures ANOVA on selected variables of pre, mid and post tests of control group

Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F'-ratio
Recovery pulse rate	Between	3.100	2	3.100	0.098
	Error	599.567	38	15.778	
Systolic blood pressure	Between	2.233	2	2.233	1.737
	Error	24.433	38	0.643	
Diastolic blood pressure	Between	0.400	2	0.400	0.313
	Error	24.267	38	0.639	

* Significant at 0.05 level. The table value required for significance at 0.05 level with df 2 and 38 is 3.24.

Table V shows that the obtained F-ratio values of control group on all the selected variables as 0.098, 1.737 and 0.313 were lesser than the table value of 3.34 with df 2 and 38 required for significance at 0.05 level of confidence. The results of the study indicate that there was insignificant difference among the means of three tests at different time period for control group on all selected variables.

Figure IV. Bar diagram on recovery heart rate
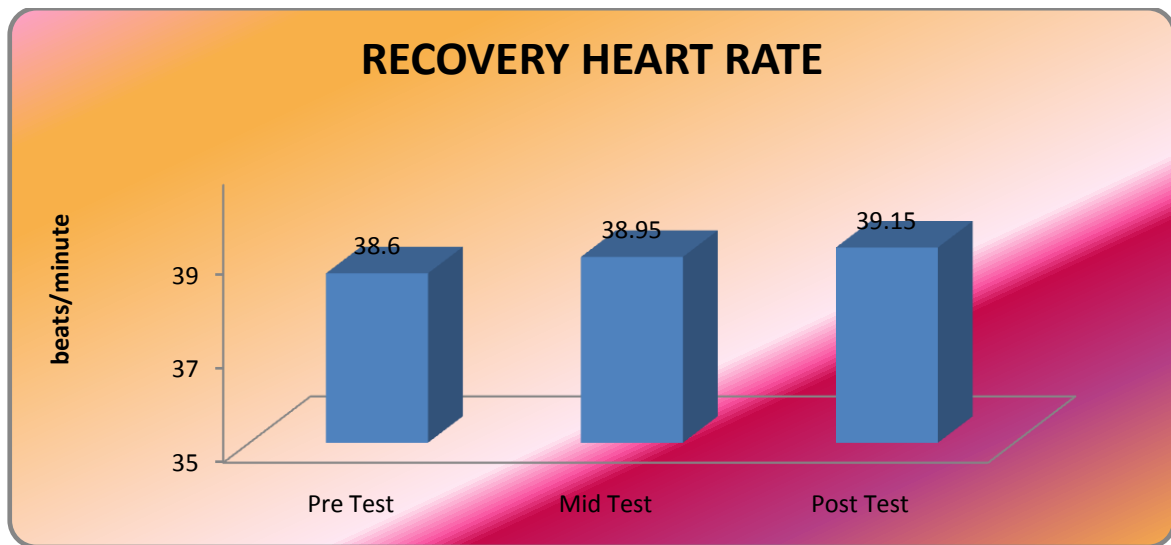
Figure V. Bar diagram on systolic blood pressure
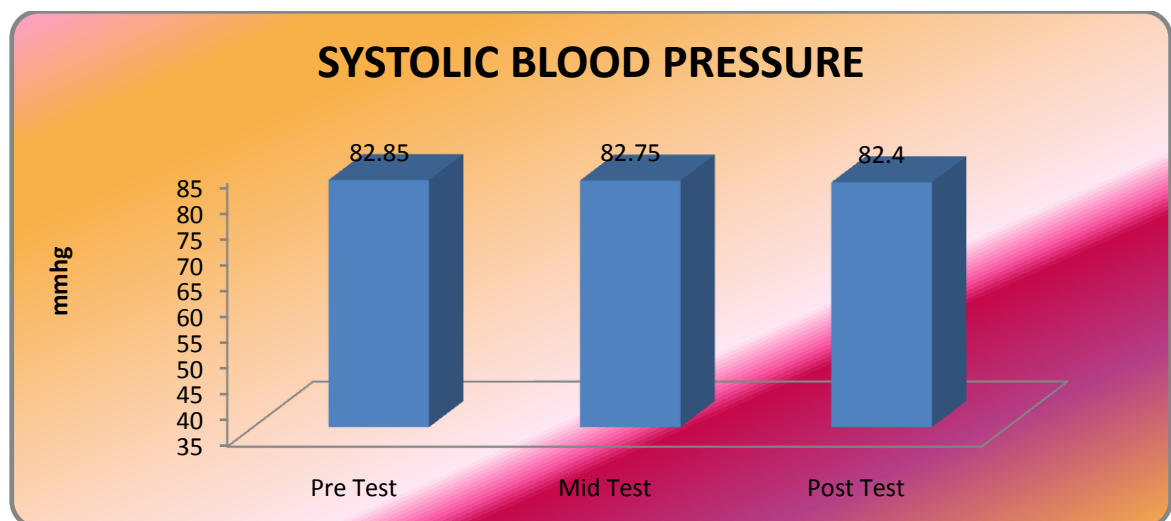
Figure VI. Bar diagram on diastolic blood pressure
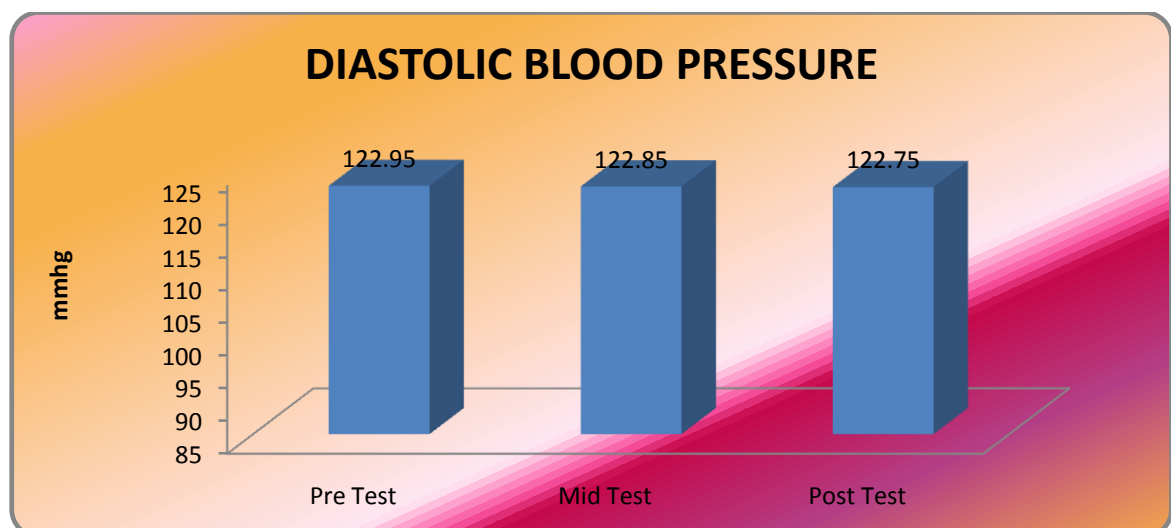
Conclusion

Based on the finding of the study, the following conclusions were drawn

1. Resistance training with soccer skill practices had significantly improved physiological variables for 12 weeks among college soccer players.
2. The result indicated, though resistance training significantly decreased recovery pulse rate, systolic blood pressure and diastolic blood pressure of soccer players between the 1st week 6th and 12th week.

Results

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