

Effect of Hypoxic Training and Pranayama Practices on Selected Soccer Skill Performance among College Men Soccer Players

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Abstract

The present study aimed to achieve the effect of hypoxic training and pranayama practices on selected Soccer skill performance among College men Soccer players. The study was conducted on forty five(N=45) men students studying Under Graduate Degree course in Farook College, Calicut, Kerala, India, during the year 2008-2010 were selected as subjects at random and they were divided randomly into two experimental groups of fifteen each, namely Group I Hypoxic Training, Group II Pranayama Practice and Group III acted as Control. The training period was limited to twelve weeks and for three days per week. The Experimental groups underwent their respective experimental treatment for 12 weeks. Dribbling and Passing were selected as dependent variables, Dribbling and Passing were assessed by Mor- Christian General Soccer Ability Test. All the subjects were tested prior to and after the training for all the selected variables. The data collected from the three groups prior to and post experimentation was statistically analyzed by using Analysis of Covariance (ANCOVA). Scheffe's post hoc test was applied to determine the significant difference between the paired means. In all the cases .05 level of significance was fixed. The result reveals significant differences in Dribbling and Passing among the experimental groups.

Keywords: Hypoxic training, Dribbling and Passing

Introduction

Sport and athletes have always been subjects for art. In early greek culture, where sport was so fundamental to social life, artists often used athletes as subjects, creating sculpture and decorating vases with athletes in action. Throughout history, artists have been intrigued by the physical beauty of the athletic body and the visual beauty of the athletic performance. Sport became the object for intellectual analysis and investigation during this century.

Soccer is a game of physical and mental challenges. Are must execute skilled movements under generalized conditions of restricted space, limited time, physical and mental fatigue, and opposing players. Are must be able to run many miles during a game, mostly at sprint like speed and respond quickly to a variety of rapidly changing situations during play. Finally, are need a thorough understanding of an individual, group and team tactics. The ability to meet all these challenges determines how well you perform on the soccer field (Luxbacher, 1996).

The use of oxygen- depleted air for training, physical improvement and curing illness is not new. Esculapius, the "blameless physician" of Greek myth and father of hygiene, was said to have built his healing temple on the mountains. Indians prepared their future chiefs in a hypoxic environment to make them stronger than their peers. Highland natives like those of the Caucasus Mountains are famed for living far beyond 100 years.

The study of Hypoxic capacity has covered such matters as the exchange of gases in the lungs during breath holding, the effects of hyper ventilation and oxygen inhalation on breath holding time and inter relation of barometric pressure and breath holding ability.

Pranayama means control of breath and it involves three main phases/it is much more important to keep strength. These are best practised in the early hours of the morning or after sunset. During Prayama practice make use of the diaphragm fully by drawing into the lowest and largest part of the lungs due to the regular practice of the Pranayama.

Breathing is so simple and so obvious that we often take it for granted ignoring the power it has to affect body, mind and spirit. With each inhale we bring oxygen into the body and spark the transformation of nutrients into fuel. Each exhale purges the body of carbon dioxide, a toxic waste. Breathing also affects our state of mind. It can make us excited or calm, tense or relaxed. It can make our thinking confused or clear. What is more, in the yogic tradition, air is the primary source of prana or life force, a psycho-physio-spiritual force that permeates the universe.

Methodology

To achieve the purpose of the study, forty five men students studying Under Graduate Degree course in Farook Training College, Calicut, Kerala, India, during the year 2007-2010 were selected as subjects of this study. The age of the subjects were ranged from 18 to 21 years. The subjects were assigned at random into three groups of fifteen each (n=15). Group I underwent Hypoxic Training, Group II underwent Pranayama Practices and Group III acted as Control (n=15). Among the soccer skills Dribbling and Passing only selected for this study. All the experimental groups underwent their respective training for 12 weeks in addition to the regular training as per College curriculum. All the groups were tested on selected criterion variables prior to and immediately after the training periods. Dribbling and Passing were assessed by Mor- Christian General Soccer Ability Test.

Training Protocol

During the training period, the experimental groups underwent their respective training programmes. Group-I underwent Hypoxic Training, Group-II underwent Pranayama Practice, for all three days per week for twelve weeks. The duration of training session in all the days was between thirty and forty five minutes approximately which included warming up and limbering down. For Hypoxic training continuous running with inhaling and exhaling with equal running stride was maintained throughout the course of training. Training progressing was given every week(i.e. first week three stride inhale and three stride exhale was given while continuous running with half an hour and following

weeks one more stride of inhale and exhale was increased) . All the subjects involved in this study were carefully monitored throughout the training programme to be away from injuries. They were questioned about their health status throughout the training programme. None of them reported any injuries or discomfort. However, muscle soreness appeared in the earlier period of the training programme and was reduced in due course.

Analysis of the Data

The data collected from the three groups prior to and post experimentation on Dribbling and Passing were statistically analyzed by using Analysis of Covariance (ANCOVA). Hence, whenever the obtained f-ratio value was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases .05 level of significance was fixed.

The Analysis of covariance (ANCOVA) on Dribbling and Passing of Experimental Groups, have been analyzed and presented in Table -1.

Table-I

Analysis Of Covariance On Dependent Variables of Hypoxic Training Group, Pranayama Practices Group and Control Group

Dependent Variables	Adjusted Post-test Means			Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
	Hypoxic Training Group (I)	Pranayama Practices Group (II)	Control Group (III)					
Dribbling (In Seconds)	18.32	18.62	18.88	Between Within	2.34 3.47	2 41	1.17 0.08	13.79*
Passing (In Numbers)	9.75	9.23	8.28	Between Within	16.58 3.77	2 41	8.29 0.09	90.15*

* Significant at .05 level of confidence

(The table value required for Significance at .05 level with df 2 and 41 is 3.23)

Table I shows that the adjusted post test mean value of Dribbling and Passing for hypoxic Training group, pranayama practices group and control group are 18.32, 18.62, 18.88, 9.75, 9.23 and 8.28 respectively. The obtained F-ratio of 13.79 and 90.15 value of 3.23 for df 2 and 41 required for significance at .05 level of confidence.

The results of the study indicate that there are significant differences among the adjusted post test means of experimental groups on the increase of Dribbling and Passing.

To determine which of the paired means had a significant difference, Scheffe's test was applied as Post hoc test and the results are presented in Table 2.

Table-II

The Scheffe's Test for the Difference between the Adjusted Post Tests Paired Means on Dribbling and Passing

Dependent Variables	Adjusted Post-test means			Mean Difference	Confidence Interval
	Hypoxic Training Group - (I)	Pranayama Practices Group - (II)	Control Group - (III)		
Dribbling	18.32	18.62		0.30*	0.26
	18.32		18.88	0.56*	0.26
		18.62	18.88	0.26*	0.26
Passing	9.75	9.23		0.52*	0.27
	9.75		8.28	1.47*	0.27
		9.23	8.28	1.00*	0.27

* Significant at .05 level of confidence

Table II shows that the adjusted post-test mean differences on Hypoxic Training Group and Pranayama Practices Group, Hypoxic Training Group and Control Group, Pranayama Practices Group and Control Group are 0.30, 0.56, and 0.26 respectively. These values are greater than the confidence interval value 0.26, which shows significant differences at .05 level of confidence.

Further the table II shows that the adjusted post-test mean differences on Hypoxic Training Group and Pranayama Practices Group, Hypoxic Training Group and Control Group, Pranayama Practices Group and Control Group are 0.52, 1.47 and 1.00 respectively. These values are greater than the confidence interval value 0.27, which shows significant differences at .05 level of confidence.

It may be concluded from the results of the study that there was a significant difference in Dribbling and Passing between the adjusted post-test means of Hypoxic Training Group and Pranayama Practices Group, Hypoxic Training Group and Control Group, Pranayama Practices Group and Control Group. However, the improvements of Dribbling and Passing were significantly higher for Hypoxic Training Group than Pranayama Group and Control Group.

It may also be concluded that Hypoxic Training Group was better than Pranayama Group and Control Group in improving Dribbling and Passing.

The adjusted post test mean values of experimental groups and control groups on Dribbling and Passing are graphically represented in the Figure -1 & 2.

Figure-1

The Adjusted Post Tests Mean Values of Experimental Groups on Dribbling (In Seconds)

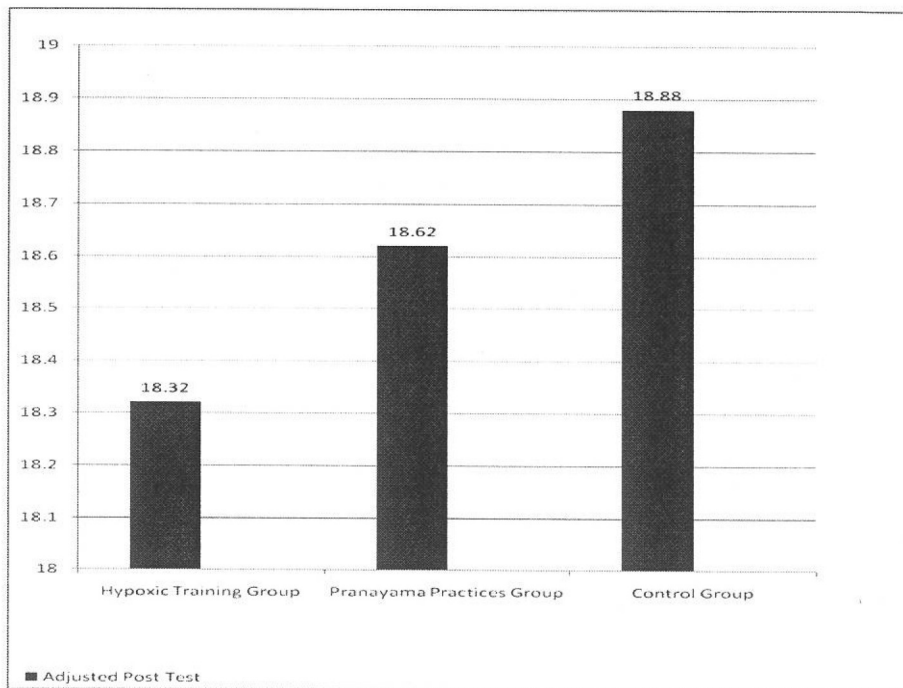
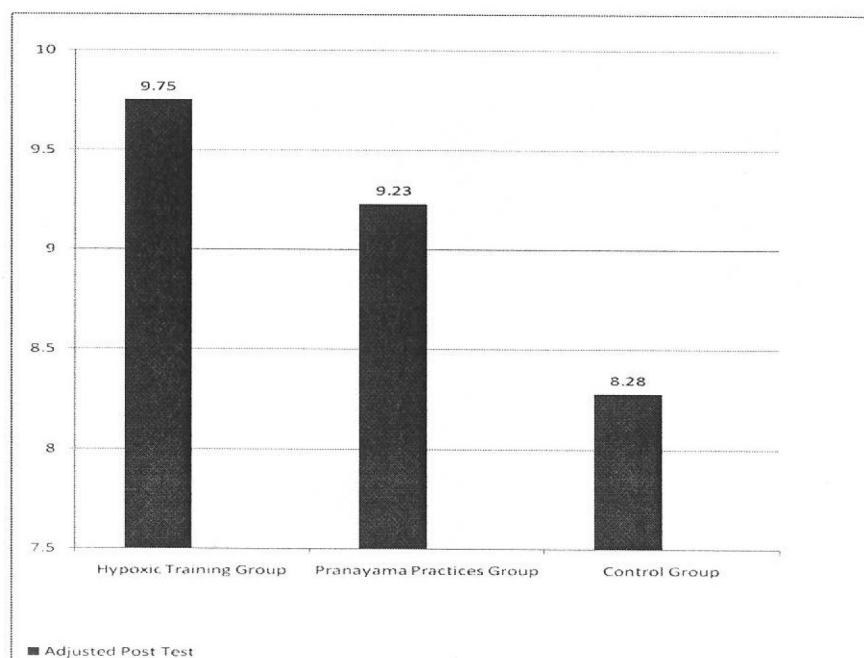


Figure-2

The Adjusted Post Tests Mean Values of Experimental Groups on Passing (In Numbers)



Results and Discussion

The results of the study indicate that all the experimental groups namely hypoxic training group and pranayama practices group had significantly improved in the selected dependent variables such as Dribbling and Passing. It is also found that the hypoxic training group was greater when compared to pranayama practices group and control group.

It is inferred from the literature (Parthiban and Nageswaran (2006), Varghese (1999) and Rusko et.al, 1999) and from the results of the present study that systematically designed Hypoxic training and Pranayama Practices enhance the performance standard, as the selected dependent variables are very important qualities for better performance in almost all sports and games. Hence, it was concluded from the results of the study that systematically and scientifically designed hypoxic training and pranayama practices may be given due recognition and implemented properly in the training programmes of all the disciplines in order to achieve maximum performance.

Conclusion

From the analysis of the data, the following conclusions were drawn.

The experimental groups namely, hypoxic training group and pranayama practices group had significantly improved in Dribbling and Passing.

Significant differences in achievement were found among hypoxic training group and pranayama practices group with regard to all the selected criterion variables such as Dribbling and Passing.

References

Luxbacher Joseph A, *Soccer Steps to Success*, Champaign, Illinois: Human kinetics Publishers, 1996.

Parthiban I. John and A.S. Nageswarn, "influence of twelve weeks of Hypoxic Training programme on Resting pulse rate, breath holding Time and cardio respiratory endurance on college men", *Indian Journal for Research in Physical Education and Sports Sciences*, Vol: 1:2 Oct 2006-March 2007.

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Preetha Annie Varghese, "Effect of hypoxic training at varied altitude on selected physiological variables and the performance of 1500 meters run" *Unpublished Master of Philosophy Thesis*, Alagappa university, Karaikudi, 1999.

Rusko, H. K., Tikkanen, et al., Effect of living in hypoxia and training in normoxia on sea level VO₂max and red cell mass. *Medicine and Science in Sports and Exercise*, 31(5) 1999, *Supplement Abstract*, 277.

