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Effect of Plyometric, Resistance, Aerobic Training Plans and Specfic Skill Performance Variables At Hill Station Football Players in Nilgiris District

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Abstract

The aim of the study was to determine the plyometric training, resistance training, aerobic training plans and specific skill performance variables at hill station football players in Nilgiris district. High altitude training is the practice of conducting physical conditioning at elevated altitudes. In sports, high altitude typically refers to elevations of at least 8,000 feet above sea level. At this elevation, the partial pressure of oxygen in the air is reduced. Consequently, physical exertion becomes more challenging and fatigue onset occurs more rapidly. The subjects were sixty (N=60) male football players selected from Nilgiris District, with ages ranging from 18 to 25 years. The subjects were divided into four groups, with each group consisting of 15 subjects.

Keywords: High Altitude Training (HAT), Resistance training

Introduction

Sport is one of the striking features of twentieth-century life, as evidenced by the variety and popularity of sporting events in the most diverse parts of the world. Sports have become an important part of a nation's culture as well as of other cultures throughout the world. Sports encompass society to such an extent that it has been described by many as a microcosm of society. As such, sports reflect characteristics of society **(Coakley 1988).** In describing sports as a game, a sport is playful, competition, physical skill, strategy, and chance and is a physical process (**Wilkeson and doilies 1979).**

Effects of High Altitude Training for Football Players

Football is the most popular sport globally, and matches are frequently played at various altitudes. As the altitude increases, the availability of oxygen decreases. The dynamics of the ball will be altered due to the decrease in air resistance. Altitude training, also referred to as hypoxic training, involves athletes engaging in training activities in high-altitude regions or being subjected to artificial hypoxic conditions in a deliberate and systematic manner. The altitude training method has been adopted in numerous countries. Particularly for endurance sports, athletes have utilized this training method to enhance their aerobic capacity and consequently to improve their performance in competitions.

Problem statement

The present study was to design to find out the effect of plyometric, resistance, aerobic training plans and specific skill performance variables at hill station football players in Nilgiris district.

Hypothesis

1. It was hypothesized that 8 weeks of plyometric training would significantly improve the physical fitness, physiological variables and specific skill performance variables among Nilgiris District-level football players.
2. It was hypothesized that 8 weeks of resistance training would significantly improve the physical fitness, physiological variables and specific skill performance variables among Nilgiris District-level football players.
3. It was hypothesized that 8 weeks of aerobic training would significantly improve the physical fitness, physiological variables and specific skill performance variables among Nilgiris District-level football players.
4. It was hypothesized that would not be significant improve the physical fitness, physiological variables and specific skill performance variables of Nilgiris District-level football players among the plyometric training group, resistance training group aerobic training group and control group.

Limitations

1. The following factors will be considered to be the limitations of the study certain factors like life style, daily routine and diet and other factors which may have an effect on the results of the study are not taken into consideration.
2. The socio economic status, motivation and climatic conditions will not be considered for this study.
3. No attempt is made to control the factors like atmosphere and temperature during training and testing period.
4. The physiological stress, way of life and quantum of physical effort that influence the metabolic functions was another limitations.
5. The plyometric training, resistance training and aerobic training required considerably longer to finish each training session because they had double the repetitions of each of their main exercises.

The review of related literature

The review of related literature serves as a guideline to understand the general trends in the research work already done in the area of plyometric training, resistance training and aerobic training which in turn help to provide direction for formulation and testing of hypothesis. The literature collected from various sources would give a clear idea about the study and lead to understand the influence of various training plans on high altitude on selected physical fitness physiological and specific skill performance variables among Nilgiris football players.

Selection of the subjects

The subjects were sixty (N=60) male football players selected from different regions from Nilgiris District, with ages ranging from 18 to 25 years. The subjects were divided into four groups, with each group consisting of 15 subjects.

Selection of Variables

- Dependent Variables
- Independent Variables

Physical Fitness Variables

Speed
Agility
Leg Explosive Power
Flexibility

Physiological Variables

Vital Capacity
Heart Rate

Specific Skill Variables

Dribbling
Passing
Kicking

Independent Variables

Plyometric Training
Resistance Training
Aerobic Training

CRITERION VARIABLES

VARIABLES	TEST ITEMS	UNIT OF MEASUREMENT
PHYSICAL FITNESS VRIABLES		
Speed	**50 Meters Run**	In Second
Agility	**4x10 Meters Shuttle Run**	In Second
Leg Explosive Power	**nding Broad Jump**	In meter
Flexibility	**Sit and reach test**	In Centimeter
PHYSIOLOGICAL VARIABLES		
Vital Capacity	Peak Flow Meter	Ml/Kg/Minute
Heart Rate	Pulse Monitor	In Beats/Minute
SPECIFIC SKILL PERFORMANCE		
Dribbling	Warner's Soccer Test	In seconds
Passing	Mor,S. Christian	Points
Kicking	Warner's Soccer Test	In meter

't' ratio between pretest and posttest means on physical fitness physiological and specific skill performance variables of plyometric training group

S.No	Variables	Pre test	Post test	SD	DF	't' ratio
PHYSICAL FITNESS VARIABLES						
1.	Speed	6.31	6.19	0.05	14	**8.75***
2.	Agility	10.44	10.22	0.13	14	**6.76***
3.	Leg Explosive power	1.82	2.05	0.05	14	**19.62***
4.	Flexibility	13.07	18.53	2.23	14	**9.49***
PHYSIOLOGICAL VARIABLES						
5.	Vital Capacity	429.46	456.73	6.65	14	**15.88***
6.	Heart Rate	71.93	69.07	0.91	14	**12.17***
SPECIFIC SKILL PERFORMANCE VARIABLES						
7.	Dribbling	20.10	19.16	0.41	14	**9.16***
8.	Passing	5.26	7.53	0.59	14	**14.79***
9.	Kicking	83.43	88.66	1.14	14	**17.64***

***Significant at 0.05 level (2.14)**

't' ratio between pretest and posttest means on physical fitness physiological and specific skill performance variables of resistance training group

S.No	Variables	Pretest	Post test	SD	DF	't' ratio
PHYSICAL FITNESS VARIABLES						
1.	Speed	6.30	6.21	0.05	14	**7.22***
2.	Agility	10.45	10.23	0.09	14	**8.42***
3.	Leg Explosive power	1.80	2.11	0.06	14	**18.92**
4.	Flexibility	13.07	16.66	0.98	14	**14.14**
PHYSIOLOGICAL VARIABLES						
5.	Vital Capacity	429.46	455.26	6.23	14	**15.41***
6.	Heart Rate	72.46	69.93	1.0	14	**9.91***
SPECIFIC SKILL PERFORMANCE VARIABLES						
7.	Dribbling	20.04	19.30	0.24	14	**12.24***
8.	Passing	5.66	8.33	0.16	14	**16.73***
9.	Kicking	83.09	93.06	3.48	14	**12.15***

't' ratio between pre and posttest means on physical fitness physiological and specific skill performance variables of aerobic training group

S.No	Variables	Pretest	Post test	SD	DF	't' ratio
PHYSICAL FITNESS VARIABLES						
1.	Speed	6.31	6.27	0.01	14	**9.58***
2.	Agility	10.44	10.28	0.09	14	**7.19***

3.	Leg Explosive power	1.81	2.02	0.09	14	**8.32***
4.	Flexibility	13.07	15.47	0.74	14	**12.62***
PHYSIOLOGICAL VARIABLES						
5.	Vital Capacity	429.47	459.60	8.54	14	**13.66***
6.	Heart Rate	71.73	69.60	0.99	14	**8.34***
SPECIFIC SKILL PERFORMANCE VARIABLES						
7.	Dribbling	20.21	18.81	0.32	14	**16.94***
8.	Passing	5.53	7.13	0.16	14	**9.80***
9.	Kicking	83.09	90.08	1.54	14	**17.58***

***Significant at 0.05 level (2.14)**

't' ratio between pre test and post test means on physical fitness physiological and specific skill performance variables of control group

S.No	Variables	Pretest	Post test	SD	DF	't' ratio
Physical Fitness Variables						
1.	Speed	6.32	6.33	0.10	14	**1.97**
2.	Agility	10.43	10.53	0.17	14	**2.06**
3.	Leg Explosive power	1.81	1.80	0.05	14	**1.75**
4.	Flexibility	13.06	12.86	0.56	14	**1.38**
Physiological variables						
5.	Vital Capacity	429.46	427.93	3.18	14	**1.87**
6.	Heart Rate	71.73	72.06	0.62	14	**2.09**
Specific Skill performance Variables						
7.	Dribbling	20.21	20.25	0.10	14	**1.74**
8.	Passing	5.53	5.56	0.35	14	**1.46**
9.	Kicking	83.09	82.87	0.62	14	**1.38**

***Significant at 0.05 level (2.14)**

Conclusion

From the analysis of the data, the following conclusion were drawn:

1. The effect of plyometic training group, resistance training group and aerobic training group significantly improved the selected physical fitness components, physiological variables and Specific skill performances among Nilgiris District soccer players
2. From the findings of the study it was concluded that the experimental groups had better improvement than the control group in all mentioned variables.
3. From the findings of the study it was concluded that the influence plyometric training group had better improvement than the resistance training group in physical fitness components variables speed, agility, flexibility. Physiological variables of vital capacity and heart rate Specific skill performances dribbling among Nilgiris District soccer players.
4. From the findings of the study it was concluded that the plyometric training group had better improvement than the aerobic training group in physical fitness components variables speed, agility,

flexibility and leg explosive power. Physiological variables of heart rate. Specific skill performances dribbling and passing among Nilgiris District soccer players.

5. 5. From the findings of the study it was concluded that the resistance training group had better improvement than the aerobic training group in physical fitness components variables speed agility flexibility and leg explosive power. Physiological variables of heart rate. Specific skill performances dribbling and passing among Nilgiris District soccer players.
6. From the findings of the study it was concluded that the resistance training group had better improvement than the plyometric training group in physical fitness components variables leg explosive power. Specific skill performances passing and kicking among Nilgiris District soccer players.
7. From the findings of the study it was concluded that the aerobic training group had better improvement than the plyometric training group in physiological variables of vital capacity. Specific skill performances kicking among Nilgiris District soccer players.
8. From the findings of the study it was concluded that the aerobic training group had better improvement than the resistance training group in physical fitness components variables speed and agility. Physiological variables of vital capacity. Specific skill performances kicking among Nilgiris District soccer players.

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