

Comparitive Analysis of Selected Physical Fitness and Psychological Variables Among University Athletes at Different Topography

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Abstract

The purpose of the study was to compare the selected physical fitness and psychological variables among university athletes at different topography. For this purpose the following variables were selected as the experimental variables like agility, abdominal strength, anxiety, aggression and achievement motivation. To achieve the purpose of the study jumpers, throwers and long distance runners from ten universities in each topography like north, south, east and west were selected as subjects. The data was collected by using standardized physical fitness tests and psychological questionnaires. To test agility 4x10 yards, shuttle run, to test abdominal strength, bent knee sit ups for one minute was used as physical fitness variables. Spielberger's Anxiety questionnaire, Smith's Aggression questionnaire and Kamlesh's Sport Achievement Motivation questionnaire were used as psychological tools to obtain data from subjects. The data collected were analysed by using, Two way ANOVA and followed by Scheffes post hoc test. The result of this study shows that there was significant difference exists in agility, abdominal strength, anxiety and aggression among university athletes at different topography and no significant difference in achievement motivation. No significant differences were found in their interaction effect in agility, abdominal strength, anxiety, aggression and achievement motivation among north, south, east and west zones university athletes. These findings show the need to develop all the physical fitness and psychological variables except anxiety and aggression to enable the athletes to perform better.

Keywords: Agility, Abdominal Strength, Anxiety, Aggression, Achievement Motivation.

Introduction

Physical fitness refers to the capacity of an athlete to meet the varied physical demands of their sport without reducing the athlete to a fatigued state. Physical fitness is the ability to carry out daily tasks with alertness and vigor, without undue fatigue, and with enough energy reserve to meet emergencies or to enjoy leisure time. Health is a state of complete mental, physical and social well being where as fitness is the ability to meet the demands of a physical task. One of the simplest and most effective ways to bring down blood glucose levels, cut the risk of cardiovascular disease, and improve overall health and well-being is physical fitness and exercise. Regular physical activity can greatly enhance the quality of life.

Psychology is the science of behaviour and experience. Behaviour includes all manifestation of life. As a pure science, psychology is concerned primarily with systematic study of behaviour and their verification through experimentation. Psychology is the science that studies behaviour and the physiology and mental processes that underlie it and the profession that applies the accumulated knowledge of this science to practical problems. The application of psychological principles to the improvement of performance in sports has received greater attention

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in these days. There are certain accepted psychological principles which have to be applied, so that the athletes and players are able to show their best in their performances. Coaches, physical educationists and sports scientists have always expressed a great need to know more about those psychological principles, which are helpful in improving the motor skills of the players. It is important to know about the role of reaction time, movement time, emotional phenomena like competitive anxiety and some personality training as well as competitive situations. It is believed that sports are a psycho-social activity full of tension, anxiety, fear, strain and stresses. In competitive sports, sports persons play to win and this spirit of winning causes many psychological stresses. The resource generation, systematization of resources developed, utilization of resources in appropriate context in required quantum, running into conflicts or the resolution of conflicts and decision making are to be done in split seconds in various sports situations, which depend on the personality adjustment of the athlete and the team to which he belongs to. Teams may win or lose under psychological stress. It is believed that winning an international sports competition greatly depends on the psychological abilities. Therefore superb psychological fitness and training of the individual are the factors which help in achieving outstanding performance (kamlesh 1988).

Purpose

The purpose of the study was to find out the comparative analysis of selected physical fitness and psychological variables among university athletes at different topography.

Review of Literature

The review of literature is instrumental in the formation of hypothesis and deductive reasoning to the problem. Garstecki (2004) conducted a study to compare selected physical fitness and performance variables between National Collegiate Athletic Association (NCAA) Division I and II football players. The subjects included offensive and defensive starters, excluding kickers and punters from 26 NCAA Division I and 23 Division II teams. Offensive players were grouped and compared by the following positions: quarterback, running back, wide receiver, tight end, and line. Defensive players were grouped and compared by the following positions: line, linebackers, and backs. Division I players were better in 58 of 117 comparisons ($p \leq 0.01$). Division II players were not found to be better in any of the variables studied. Lee (2007) conducted a study on comparison of the effects of an exercise program in non-obese and obese women. The results show that Physical fitness (abdominal muscle strength, muscle endurance, flexibility, agility, balance) was significantly different between the selected test in the non-obese and obese group. Jagbir Singh. et.al, (2007) has conducted a study to compare difference of competitive anxiety among selected male sports groups, sample consisted of 121 players, of various sports groups, via. Judo, softball, handball, hockey and basketball, in the intercollegiate tournaments assessing your anxiety scale developed by Rainer martens (1977) were used to secure the responses. ANOVA and scheffes post hoc test were used to analyze the data; and the results shows hat significant difference was observed among male sports groups, significant difference was observed among judo and softball players and softball and basketball players. Kirker B et.al, (2000) conducted a study on the significant problems in the study of sports aggression, and they are linked to how aggression has been defined, measured, and analyzed. Following a review of the whole domain, this study aimed to construct a theoretically coherent and ecologically valid framework for research on processes underlying sports aggression and to contribute to the advancement of knowledge in the area. An exploratory method using computer observational analysis as the primary research method, along with complementary questionnaires and personal reflections, considered aggression in two comparison sports: ice hockey and basketball. Data were compiled and classified by involved and independent experts relative to factors and behaviors associated with sports aggression

derived from a comprehensive review of the literature. Among the study's findings was that: (a) aggression was instrumental in nature two-thirds of the time; (b) aggressive acts typically occurred in clusters and varied in frequency according to game circumstances; and (c) multiple variables and aggression theories were related to severely aggressive acts. The complex dynamics of sports aggression via similar naturalistic methodologies is discussed. Conroy et.al., (2004) conducted a study on the hierarchical model of achievement motivation proposes that, in addition to need achievement, fear of failure (FF) energizes achievement behaviour and predisposes individuals to adopt particular types of achievement goals. Results were consistent with the hierarchical model of achievement motivation and suggest that FF may indeed have a causal influence on achievement goals.

Methodology

For the present investigation forty university men athletes in each category of jumps, throws and long distance running from four topographies such as north, south, east and west were selected as subjects at random.

Table - I

The Physical Fitness and Psychological Variables Selected for this Study and Tests Used

S.No	variables	Tests	Units of measurements
1.	Agility	4x10 yards shuttle run	Seconds
2.	Abdominal strength	Bent knee sit ups for one minute	Counts
3.	Anxiety	Spielberger's Trait Anxiety Questionnaire(1966)	Scores
4.	Aggression	Smith Aggression Questionnaire (1979)	Scores
5.	Achievement motivation	Kamlesh's Sport Achievement Motivation Questionnaire (1983)	Scores

The above mentioned standardized tests were conducted to measure the agility, abdominal strength, anxiety, aggression and achievement motivation of the subjects. Before administering the physical fitness test and psychological questionnaire, the investigator has briefly explained to the subjects the purpose of the study and the method of performing the physical fitness test and filling the questionnaire.

Statistical Technique

The present study was conducted on university athletes at different topography. In order to examine the difference, which exists among jumpers, throwers and long distance runners in the chosen physical fitness variables and psychological variables, Two way analysis of variance (2 way ANOVA) was computed. The level of significance was fixed at .05 level. Where ever significant differences were found Scheffe's post-hoc test was used. (Thirumalaisamy, 1998).

Table - II

Two Way Analysis of Variance on Agility, Abdominal Strength, Anxiety, Aggression and Achievement Motivation Among University Athletes at different Topography

Variables	Source of variance	Sum of squares	Degrees of freedom	Mean squares	Calculated value	Table value
Agility	Factor A	14.25	2	7.12	30.97*	3.07
	Factor B	0.68	3	0.23	0.98	2.68
	Factor A & B	0.71	6	0.12	0.51	2.17
	Error	24.84	108	0.23		
Abdominal strength	Factor A	1908.52	2	954.26	66.74*	3.07
	Factor B	16.37	3	5.46	0.38	2.68
	Factor A & B	63.28	6	10.55	0.74	2.17
	Error	1544.2	108	14.30		
Anxiety	Factor A	1274.12	2	687.06	27.07*	3.07
	Factor B	76.89	3	25.63	1.09	2.68
	Factor A & B	101.08	6	16.85	0.72	2.17
	Error	2541.7	108	23.53		
Aggression	Factor A	212.45	2	106.23	21.72*	3.07
	Factor B	0.97	3	0.32	0.07	2.68
	Factor A & B	10.88	6	1.81	0.37	2.17
	Error	528.2	108	4.89		
Achievement motivation	Factor A	51.47	2	25.73	0.95	3.07
	Factor B	39.3	3	13.1	0.48	2.68
	Factor A & B	55.2	6	9.2	0.34	2.17
	Error	2928.4	108	27.11		

* Significance at .05 levels

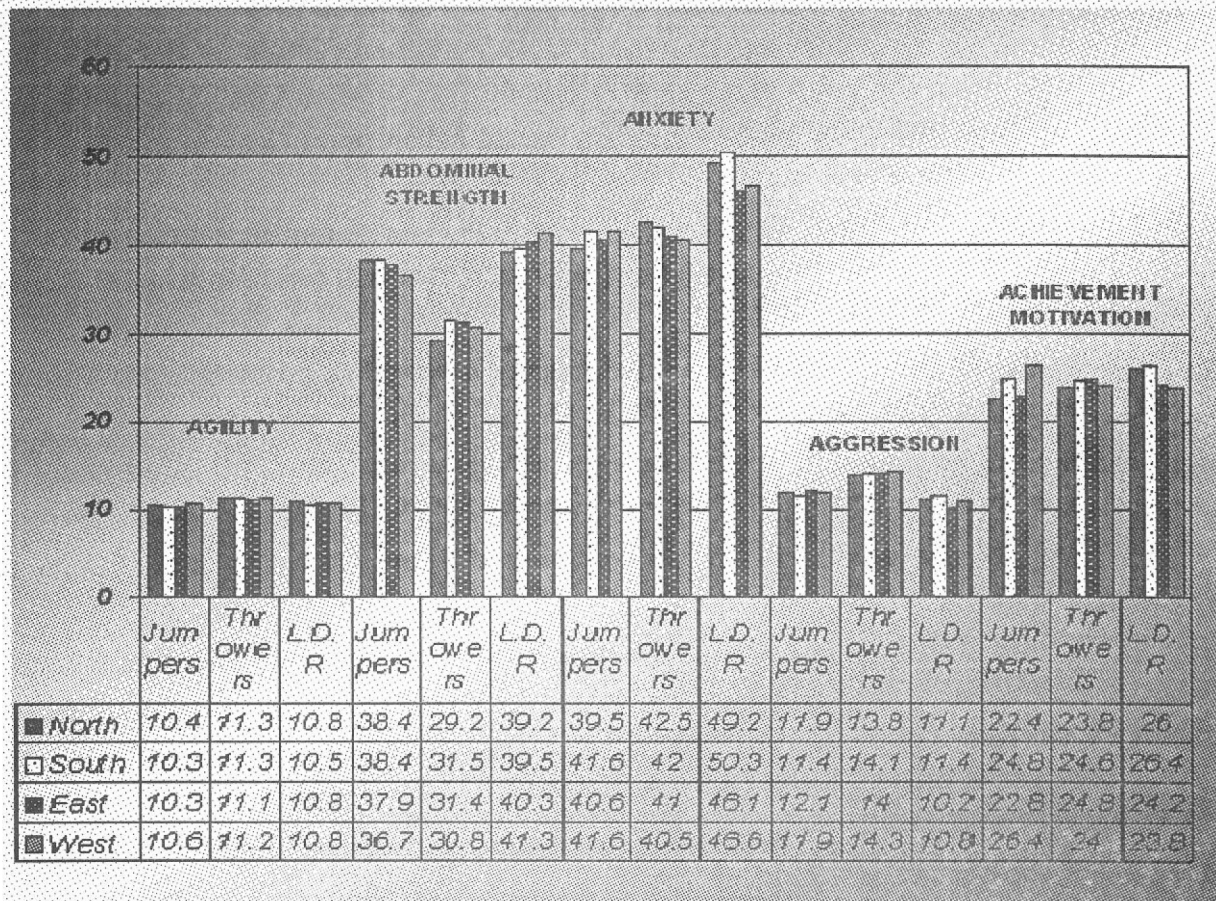
Table - III

Ordered Scheffe's Post Hoc Test on Agility, Abdominal Strength, Anxiety and Aggression Among University Athletes at Different Topography

Variables	Jumpers	Throwers	Long distance runners	MD	CI
Agility	10.40	11.23	-	0.83*	0.53
	10.40	-	10.70	0.30	0.53
	-	11.23	10.70	0.54*	0.53
Abdominal strength	37.85	30.73	-	7.13*	4.19
	37.85	-	40.08	2.23	4.19
	-	30.73	40.08	9.35*	4.19
Anxiety	40.83	41.5	-	0.67	5.38
	40.83	-	48.05	7.22*	5.38
	-	41.5	48.05	6.55*	5.38
Aggression	11.83	14.05	-	2.22	2.45
	11.83	-	10.88	0.95	2.45
	-	14.05	10.88	3.17*	2.45

Figure 1

Bar diagram shows the mean scores of agility, abdominal strength, anxiety, aggression and achievement motivation among university athletes at different topography



Discussion on Findings

The results of the study showed that there was significant difference in agility, abdominal strength, anxiety and aggression among university athletes at different topography. From the table III it is clear that jumpers have better agility than throwers and long distance runners, long distance runners have good abdominal strength than throwers and jumpers, long distance runners are more prone to anxiety than throwers and jumpers, throwers are more aggressive than jumpers and long distance runners. This may be due to the fact the athletes' effort, continuous training sessions with proper recovery and the psychological situations which they have come across. There was no significant difference in agility, abdominal strength, anxiety, aggression and achievement motivation among the different topographies like north, south, east and west zones and also in their interaction with university jumpers, throwers and long distance runners. This may be due to the same level of training or break in training sessions, same level of competition adopted by athletes of different zones of universities and same level of participation and competition.

Conclusions

This study shows that there was significant difference exists in agility, abdominal strength, anxiety and aggression among university athletes and no significant difference in achievement motivation. There were no significant differences found in their interaction effect in agility, abdominal strength, anxiety, aggression and achievement motivation among north, south, east and west zones university athletes. This finding shows the need to develop all the physical fitness and psychological variables to enable the athlete to perform high.

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