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A Study of Job Satisfaction of Coaches of Central Government and Universities of India

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Abstract

The purpose of the study was to compare job satisfaction of coaches belonging to central government and universities of India. All subjects were randomly selected. Total 60 coaches were selected out of which 30 from central government and 30 from universities were selected for the study. Data on job satisfaction was collected by a questionnaire developed by Dr. Amar Singh and Dr. T.R. Sharma. To compare job satisfaction of coach's independent t-ratio was used at .05 level of Significance. Results: The analysis of data revealed that t-value of job satisfaction of coaches employed in central government and state universities was 8.731 which were significant at .05 level (Tab t .05 = 2.00).

Keywords

Job Satisfaction, Central Government and university, Coaches

1. INTRODUCTION

Today, performance in sports doesn't only depend on systematic training to develop physical, physiological variable and technical aspects of sports but also demand training and consideration of affective domain for success in this field.

Job satisfaction describes how content an individual is with his or her job. It is relatively recent term since in previous centuries the jobs available to a particular person were often predetermined by the occupation of that person's parent. There are variety of factors that can influence a person's level of job satisfaction; some of these factors include the level of pay and benefits, the perceived fairness of the promotion system within a company, the quality of the working conditions, leadership and social relationships, and the job itself (the variety of tasks involved, the interest and challenge the job generates, and the clarity of the job description/requirements).

The happier people are within their job, the more satisfied they are said to be. Job satisfaction is not the same as motivation, although it is clearly linked. Job design aims to enhance job satisfaction and performance; methods include job rotation, job enlargement and job enrichment. Other influences on satisfaction include the management style and culture, employee involvement, empowerment and autonomous work groups. Job satisfaction is a very important attribute which is frequently measured by organizations. The most common way of measurement is the use of rating scales where employees report their reaction to their jobs. Questions relate to rate of pay, work responsibilities, variety of tasks, promotional opportunities, the work itself and co-workers.

Scientific management (aka Taylorism) also had a significant impact on the study of job satisfaction. Frederick Winslow Taylor’s 1911 book, Principles of Scientific Management, argued that there was a single best way to perform any given work task. This book contributed to a change in industrial production philosophies, causing a shift from skilled labour and piecework towards the more modern approach of assembly lines and hourly wages. The initial use of scientific management by industries greatly increased productivity because workers were forced to work at a faster pace. However, workers became exhausted and dissatisfied, thus leaving researchers with new questions to answer regarding job satisfaction. Job satisfaction can also be seen within the broader context of the range of issues which affect an individual’s experience of work, or their quality of working life. Job satisfaction can be understood in terms of its relationships with other key factors, such as general well-being, stress at work, control at work, home-work interface, and working conditions.

2. METHODOLOGY

The study was conducted on coaches working under central government and universities of India. All subjects were selected randomly. Overall (N = 60) 60 coaches 30 from central government & 30 from universities were selected for the study.

Data on job satisfaction was developed by Dr. Amar Singh and Dr. T. R. Sharma. A multiple methods of data collection were used so that timely and effectively information could be gathered. Depending on convenience of subjects and researcher mailed questionnaires, personal interview and telephonic questionnaire based interview were used to collect the data. Data hence collected was assorted and scored according to procedure explain in testing manual of Job Satisfaction Scale To compare job satisfaction of coaches employed in central government and universities t-ratio was used at .05 level of Significance.

Table 1: Comparison of Job Satisfaction of Coaches Working Under Central Government and Universities

Group	N	Mean	Std. Deviation	df	t-test
Central	30	80.9000	15.45483	58	8.731
State	30	51.8000	9.71810		

Significant at .05 levels (Tab t .05 = 2.00).

The analysis of data revealed that t- value of job satisfaction of coaches employed in central government and universities was 8.731 which were significant at .05 levels (Tab t .05 = 2.00).

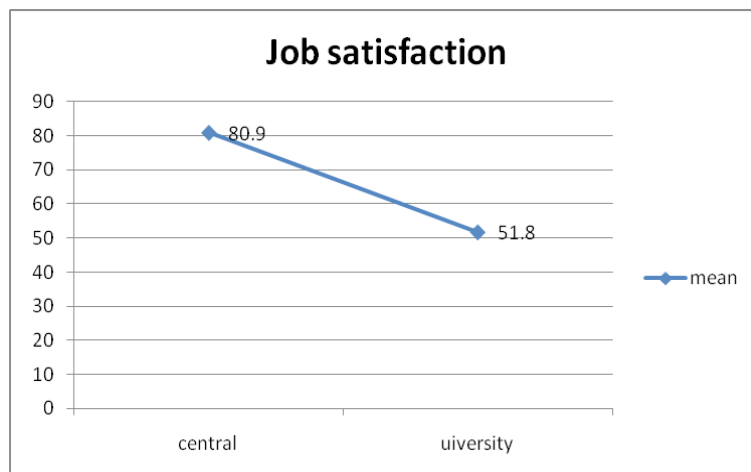


Figure 1: Means and Standard Deviations of Job Satisfaction of Coaches Working Under Central Government Universities

3. RESULTS AND DISCUSSION

It may therefore be concluded that job satisfaction of coaches working central government are highly satisfied with their job than the coaches working in universities. The varying level of job satisfaction found between the two groups of coaches can be attributed to the fact that the psycho-social and financial aspects of the coaches job within the two organisations are different. The job satisfaction is result of the different patterns of incentives, wages and financial gains, recognitions, occupational and social status, job security, organisational climate and structure, working conditions, clarity in duty and responsibility etc.

It is also obvious that the coaches working under central government would likely to have higher job satisfaction due to job security, better incentives, high occupational & social status, nationwide recognition, important responsibility, assured career promotions, better wages and financial gains than the university coaches. These are the reasons that can be attributed to the highest level job satisfaction in coaches working under central government in comparison to university coaches.

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Role of the Manipur University in the Promotion of Sports, Tourism and Education

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Abstract

The Manipur University, a central university that is the only in the State has 88 affiliated colleges. Manipur that lies geographically between 23.50° N and 25.41° N latitudes and 93.2° E or 94.47° E longitudes at an altitude of 790 meters is one of the constitutional small State of the union of India. With a small population of around 20 lacs within an area of 22.327 sq.km., Manipur has a close neighborhood of Myanmar on its east and south. Inhabited by various of nearly 30 different tribes of all the Mongoloids. Manipur has a limited valley area of only 8 percent within which Imphal; a centre of cultural, commercial, tourism and sports activities; is the capital city of the State. As a centre of tourists from abroad, there is one floating park, which is the only one in India, Keibul Lamjao where a unique species of the animal deer, locally named "Sangai" and zoologically "Cervus Eldi Eldi" after its discoverer's name Lt. Cervus Eld during the British rule in India. And a rare flora "Siroy Lily" discovered by Sir F. Kingdom is really an extra ordinary lily that can't grow any where in the world except in Siroi Hill in Manipur.

The university plays a vital role in promoting sports in Manipur under different programmes and activities: (i) by organizing inter-college, inter-university sports competitions. (ii) by sending talented sports persons in various tournaments at both National and International levels. (iii) by imparting coaching and training to the sports persons of Manipur in collaboration with association of Indian universities (AIU) and other agencies. (iv) by nurturing indigenous game like Polo, (internationally known and Sagol Kangjei as locally known), that is recorded to the Genius Book of Records, to be originated in Manipur in C. 3100BC, and many other sports. (v) by encouraging the outstanding players in the way of cash award, job opportunity, reservation in study etc. and providing the staff members as well as the students of the University, recreational activities through sports like Yoga and therapeutic remedies for keeping good health.

The University of Manipur which is a central university not only works in the field of sports it turns towards different facilities also attracting numerous foreign students particularly in tourism and education in general. Besides general courses. It has study centre for International trade and commerce, South East Asian languages, dance and music one of which Manipur dance and drama that is very much popular in the world.

In my point view, the theme "The Impact of University Sport on the Global Community" of the conference is very much important specially for the Asian countries most of which are in the development stage. Moreover, I am very much pleased to have such an opportunity of experiencing the first hand the 28th FISU Conference Gwangju 2015 and attending the conference representing my University which is in a very far corner of the so call sub-continent India.

Keywords

Sports, Education, Tourism

1. INTRODUCTION

Manipur University was established in the year 1980, with the main objective to promote the spirit of free enquiry in the search of truth, including establishment of a sports department. It was in 1982, that the University succeeded in opening a non-teaching sports department. This was followed by the constitution of a sports body. i.e., Manipur University Sports Committee (MUSC). The committee started functioning from the 1st July 1982 and subsequently affiliated to the Association of Indian Universities (Sports Division) New Delhi. The MUSC, Department of Physical Education and Sports Science and Department of Sports, Manipur University have been responsible for promoting games & sports among the collage & University students under the dynamic patronage of Prof. H. Nandakumar Sarma, the Humble, Vice-Chancellor, MU are looking forward to promote the Sports, Tourism and Education at International Level by conducting the following programme regularly:

1. **Organizing:** Inter-Collage, Inter-University sports competitions
2. **Participating:** Zonal and Inter-Zonal Inter-University Tournaments'
3. **Pre-Competition Coaching:** Various sports disciplines
4. **Nurturing:** Indigenous games of Manipur.

In collaboration with the Association of Indian Universities (AIU), and other agencies like Sports Authority of India (SAI), Govt. of India, Youth Affairs and Sports (YAS) Govt. of Manipur, and concern State Sports Associations.

For proper and systematical execution of the above programmes constituted a committee i.e. Manipur University Sports Committee (MUSC) and its Executive Committee consists of the following: Vice-chancellor, Registrar, and Dean of student welfare, HoD, Physical Education and Sports Science, Director of Sports, M.U. as the President, Vice-president and Secretary respectively. And, the members are, 4 teachers from Post graduate classes, M.U., 4 Physical Instructors/Instructresses from the affiliated Colleges; at least one of them should be lady. 1 representative from L.M.S. Law College., 1 representative from State Level Sports Association., 1 Teacher/Physical Instructor of the Regional Institute of Medical Science., President of Manipur University Student's Union., 1 representative from the Directorate of Education (U) Govt. of Manipur, Directorate of Youth Affairs and Sports, Govt. of Manipur, Director Sports Authority of India (NERC) Takyel, Manipur and 1 representative from Manipur Olympic Association.

All the members shall be appointed by Vice-chancellor, MU for the term of one year starting from 1st July of a year to 30th June of next year, on the recommendation of the Registrar, Dean of Student's Welfare, and Director of Sports, M.U.

1.1. Promotion of Sports

More than 30 Sports Disciplines, including Indigenous Game selected for organization of Inter College Tournaments at different eighty six affiliated colleges in every year on rotation basis under the supervision of Manipur University Sports Committee (MUSC). The Inter College Tournaments enable its individual to acquire a rich experience though plays. Play opens the door for rich social experiences. Educated person require social qualities. These can be gained through play activities. Hence, the participation in games & sports provide rich opportunities of socialization. Again it helps the individual to play co-operation is key to success. Without co-operation there is no play and, team game teaches the spirit of co-operation, courtesy, fair play and sportsmanship. Curtsey and politeness are the basis of citizenship training that ensures a behavioral change for the good.

Pre-competition Advance Coaching: Manipur University has been conducted an advance Trial selection and giving scientific coaching/training for enhance the performance to those participating athletes of combined universities represent of Indian Universities for World Universidad and National Championships organized by National Sports Federations.

Sports Facilities Providing Programme: The Manipur University provides regular playing field facilities of a multipurpose Indoor Stadium, Football, Volleyball, Basketball, Hockey, Lawn Tennis, Track & Field and conditioning equipments Multi-Gym to University/College/other agencies.

Faculty Development Program: The teaching & non-teaching staffs of the Department of Physical Education and Sports Science and Department of Sports are also allowed to attend the short term course in Sports Science, Scientific Coaching, Orientation, Seminar, Conference and Awareness programs etc.

Financial Assistance: The expenditures of the Manipur University Sports contingents like TA, DA & Kits including those of Manager and Coach are born by the University.

Incentives Awards: Players who have got 1st, 2nd and 3rd positions in the All India Inter-University Competition/ Tournaments are awarded incentive as Blazer Coats with university logo. Further, cash incentives are also given to the P.G. classes' students representing Manipur University in the Inter-University Tournaments.

1.2. Promotion of Sports Tourism

Thousands of sports persons including coaches and Physical Education Teachers inside and outside Manipur have the opportunity to promote sports Tourism by participate in the Inter-University Tournaments like East Zone, North-East Zone, Inter-Zonal and All India Inter-University Tournaments held at various part of country, under the auspices of Association of Indian Universities, India.

1.3. Promotion of Sports Education

The Manipur University offering the following programmes have been conduct regularly:

- a. Regular academic programmes in University and it's affiliating Institutes:
 1. PEHES (B.Sc. Physical Education Health Education and Sports)
 2. B.P.Ed. (Integrated 4 yr. Bachelor of Physical Education and Sports Science)
 3. B.P.Ed. (2 yr. Bachelor of Physical Education)
 4. M.P.E. (Master of Physical Education)
 5. Pre-Ph.D. Course Work (6 months for register in Ph.D. in Physical Education)
 6. Ph.D. (Research in Sports Sciences).
- b. Mass Lecture Programmes:
 1. Conduct mass workshop to the student players under the areas on Talent
 2. Identification and its Sanitization, Sports Nutrition
 3. Carrier opportunities in Sports.
- c. Holding & Participation:
 1. Seminars
 2. Workshop
 3. Conferences etc.

On Physical Education and Sports Science at State, National and International levels.

- a) Impart Sports Science knowledge to the Players, Coaches and Physical Educators.
- b) Reaching infra-structural facilities and advance equipment to the Players, Students, Employees of the University and local outsiders.
- c) Regularise opening of Faculties/Department on Sports & Physical Education in the Colleges etc.
- d) Special examinations have also been arranged for those students who had been selected to represent the University/the State/National Teams if schedules of the Tournament collide with those of the University examinations.
- e) Extension of services to State Govt./Manipur Olympic Assn./State Associations in activities concerning with sports.
- f) Help organize M.U. Weeks, a mega event of Cultural, sports & Literary activities of the P.G. Classes students of the University & Hostels.
- g) Reaching infra-structural facilities to the students employees of the University and also to the outsiders/locals.



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Comparative Study on Pre-competition Anxiety Among Different Level Athletes

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Abstract

The purpose of the study was to find out pre-competition anxiety among different level Athletes. Due to the fact that during competition athletes' mental state greatly affects their stamina explosion, which finally influence the result of final competition. Anxiety in sports is considered as an important issue for many athletes. It refers to a sort of nervous and fear emotion formed by frustration of self-esteem and self-confidence, or increasing of the sense of failure and guilty, which is resulted by the threat from being unable to achieve goals or to overcome obstacles at the right time. For the purpose of the study the subjects were selected randomly from 64th State Athletic Championships of West Bengal and 2014 district Athletic Championships of Burdwan district, East-Medinipur district, Hooghly district and North 24 Parganas district to measure the pre-competition anxiety by a questionnaire Sport Competition Anxiety Test (SCAT) developed by Rainer Marten. 60 male Athletes (20 national level athletes, who participated at national level Athletic competition as a representative of West Bengal, 20 male state level athletes, who participated in state level Athletic competition as a representative of their districts but could not qualify for the National level Championship and 20 district level Athlete who represent their respective sub-deviation but could not qualify for the State level and national Level. The age of the subjects were ranged between 16 to 22 years. To find out pre-competition anxiety among national level, state level and district level athletes 'ANOVA' was applied to calculate the collected data at 0.05 level of significance. The result showed that there was significant difference on pre-competition anxiety among national level, state level, and district level athletes. The male District Level Athletes possessed more pre-competition Anxiety than the male State Level Athletes and national level athletes. Male State Level Athletes possessed more pre-competition Anxiety than the national level athletes but less pre-competition Anxiety than male District Level Athletes.

Keywords

Pre-competition Anxiety, National Level Athletes, State Level Athletes, District Level Athletes

1. INTRODUCTION

In the modern world the field of sports has become so popular that large number of young men and women participate in sports from all over the world. The standard of games and sports has improved a lot due to mechanical principles and modern training. A sports man or a player takes advantages of the training methods and he always changes from one process of training to another to benefit from them.

Athletics may refer to: Athletics (track and field), a sport, comprising a group of athletic events or disciplines, each of which involves running, walking, throwing or jumping. Track-and-field athletics are the oldest forms

of organized sport, having developed out of the most basic human activities—running, walking, jumping, and throwing. Athletics have become the most truly international of sports, with nearly every country in the world engaging in some form of competition. Within the broad title of athletics come as many as two dozen distinct events.

Track and field competition has always been regarded as “mother of sports”, for it is the foundation for the other sporting events (John and Paul, 1993). What’s more, sprint is a fundamental event in track and field sports, with very significant meaning and role to the training of other sporting events (Mangan, 2009). When athletes do not perform well in relation to their abilities, nervousness in anticipation of the sporting challenges could be the root cause of anxiety.

Anxiety refers to a sort of nervous and fear emotion formed by frustration of self-esteem and self-confidence, or increasing of the sense of failure and guilty, which is resulted by the threat from being unable to achieve goals or to overcome obstacles (Akbar et al., 2011). Anxiety can have a devastating effect on the performance of an athlete. No matter how much talent or skill one may have, he will never perform at his or her best if he or she lives in fear before every event.

The problem of pre-competitive anxiety is one of the most pressing problems in modern sports psychology. It has been recognized for many years that psychological factors, in particular anxiety, play an important role in competition and in competitive sports, every athlete experience fear before, during and after events (Lizuka, 2005). Anxiety could make even the world most successful athlete feel nervous. According to Moran (2004), factors such as fear of failure and lack of confidence induce feeling of anxiety in athletes. Anxiety is like worry; it is an unpleasant emotion that most athletes feel at sometimes when they are faced with challenges.

Competitive anxiety is one of the factors to decrease athletes’ performance (Esfahani & Soflu., 2010). Feelings of tension, thinking of upcoming events in their mind, nervousness, worry and involved in physiological changes such as increased in heart rate response are common response for the athletes prior to the competition (Hackfort & Spielberger, 1989). Some athletes also involved with the feelings of fear, unhappiness, guilt, discouragement, and focus distraction (Cerin, 2003; Kais & Raudsepp, 2005). All of these conditions are a common conditions which is known as anxiety (Cerin, 2003; Hackfort & Spielberger, 1989; Jarvis, 2006; Kais & Raudsepp, 2005; Martens, Vealey, & Burton, 1990; Wiggins, 1998). However, Hanton et al., (2008). Generally, there are two types of anxiety that are state anxiety and trait anxiety (Cox, 2002). State anxiety involved feeling of apprehension, tension, fear, and increase in physiological arousal (Cox, 2002).

Researcher took up this study to compare the Pre Competitive anxiety among the Players who represent the West Bengal in national level track and field competition, the Players who represent their respective District in state level but could not qualify for the National Championship and the district level Athlete who represent their respective sub-deviation but could not qualify for the State level and national Level.

2. STATEMENT OF THE PROBLEM

The purpose of the study was to compare the differences on pre-competition Anxiety among different level Athletes.

3. METHODOLOGY

For the purpose of the study 60 male Athletes (20 national level athletes, who participated at national level Athletic competition as a representative of West Bengal, 20 male state level athletes, who participated in state level Athletic competition as a representative of their districts but could not qualify for the National level Championship and 20 district level Athlete who represent their respective sub-deviation but could not qualify for the State level and national Level) were selected randomly from 64th West Bengal state Athletic Championships and 2014 district

Athletic Championships of Burdwan district, East-Medinipur district, Hooghly district and North 24 Parganas district. The age of the subjects were ranged between 16 to 22 years.

To compare the pre competition anxiety between the National, state level and the district Athlete the data were collected by using Sport Competition Anxiety Test (SCAT) questionnaire, developed by Rainer Marten. 'ANOVA was applied to calculate the collected data at 0.05 level of significance and to identify the significance differences among the means critical difference was used as a Post-hoc test.

4. FINDING

To find out whether there was any significant difference among mean values of pre-competition Anxiety among different level Athletes, one way analysis of variance technique was employed. 'F' -ratio of pre-competition Anxiety for different level Athletes has been presented.

Table 1: Mean and Standard Deviation on Pre-competition Anxiety Among Different Level Athletes

Position	Pre-Competition Anxiety(mean)	Pre-Competition Anxiety(S.D)
National Level	16.65	2.03
State Level	19.75	2.80
District Level	21.20	2.46

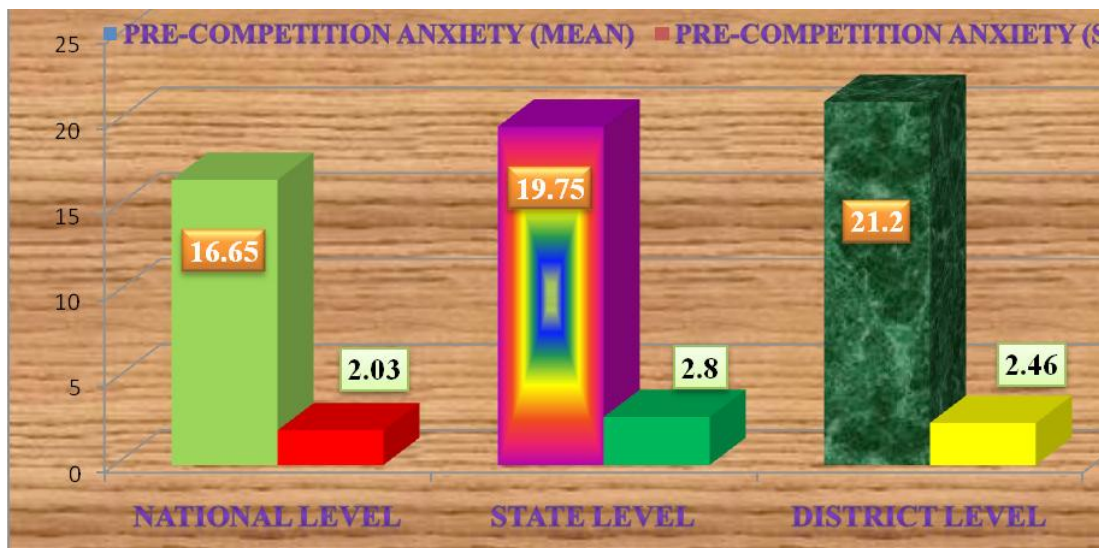


Figure 1

Table 2: 'F' Ratio Forpre-Competition Anxiety Among Different Level Athletes

Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	'F' ratio
pre-competition Anxiety	Between Groups	258.55	129.27	(K-1) = 2	23.12*
	Within Groups	319.05	5.57	(N-K) =57	

*Significant at 0.05 level of confidence: F0.05 (2, 57) = 3.15

It was understood from table values that the calculated 'F' was statistically significant at 0.05 level of Significant, confirming the significant difference among the Defender level of Athletes, ofpre-competition Anxiety, in order to find out the exact location of the differences among the means critical difference was used as a Post-hoc test.

Table 3: Analysis of Critical Difference of National Level Athletes, State Level Athletes and District Level Athletes in Pre-competition Anxiety

Position Compared	Pre-Competition Anxiety		
	Mean	Mean Difference	Critical Difference
National Level Athletes and State Level Athletes	16.65	3.1*	.88
	19.75		
National Level Athletes and District Level Athletes	16.65	4.55*	.88
	21.20		
State Level Athletes and District Level Athletes	19.75	1.45*	.88
	21.20		

5. DISCUSSION

Anxiety plays a paramount role in sports. It is the challenge in sports participation which produces anxiety. How an athlete handles the anxiety determines how successful he would be. Anxiety may be a positive motivating force or it may interfere with successful performance in sports events. The degree of anxiety also varies with a number of different conditions. Anxiety is likely to be greater in higher competitive sports than in relatively non competitive sports, because in the competitive sports, participants are expected to win a great demands are made up on them to succeed.

It is revealed from the above findings that the male District Level Athletes possessed more pre-competition Anxiety than the male State Level Athletes and national level athletes. Male State Level Athletes possessed more pre-competition Anxiety than the national level athletes but less pre-competition Anxiety than male District Level Athletes.

This study highlighted the anxiety levels by utilized both psychological and physiological measures of anxiety as the competition approached among different level Athletes. The mean for pre-competition Anxiety scores shown higher in District Level Athletes than the state level athletes and national level athletes but in case of SD state level athletes shows higher result.

Competitive anxiety is one of the factors to decrease athletes' performance (Esfahani & Soflu., 2010). Feelings of tension, thinking of upcoming events in their mind, nervousness, and worry and involved in physiological changes such as increased in heart rate response are common response for the athletes prior to the competition (Hackfort & Spielberger, 1989). Some athletes also involved with the feelings of fear, unhappiness, guilt, discouragement, and focus distraction (Cerin, 2003; Kais & Raudsepp, 2005).

The national level players are more experienced and have adjustable ability with the environment and situation before competition. They are able to control their emotion and anxiety. Their nutritional status, blended demand with training for skill development in their training schedule and previous record in competition increase their confident level before competition. These have been reflected in the result for significant differences.

Douglas et al (2006) stated that the major sources of pre-competitive anxiety include: fear of failure, thinking too much on what people may say about the performance, and lack of confidence. They concluded however, that pre-competitive anxiety is dependent upon factors such as: skill level, experience and general level of arousal in daily activities. In case of District Level Athletes they are not too much experienced and exposed to competition of the state level athletes and national level athletes and state level athletes like national level athletes which reflect in to the study.

6. CONCLUSIONS

Based on the findings and within the limitation of the present study, following conclusions were drawn:

- Male District Level Athletes, are much more Prone to pre-competitive anxiety due to fear of failure, thinking too much on what people may say about the performance, and lack of confidence, skill level, experience and general level of arousal in daily activities.
- Male state level athletes are more pre-competitive anxiety than the national level athletes due to lack of confidence, skill level, experience and general level of arousal in daily activities.
- Male national level athletes are subjected to less pre-competitive anxiety due to more experience and adjustable ability with the environment and situation before competition, control their emotion and anxiety, their training schedule and previous record in competition and practice.

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A Comparative Study on Vulnerable Stress Between Pre-adolescent and Adolescent School Going Children

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Abstract

The purpose of the study was to find out vulnerable stress between Pre-Adolescent and Adolescent school going children due to modern education system and other related factor. Many changes occur in the transition from childhood and adolescence and very little attention has been given to prepubescent stress response that's way the researcher took up this study. 50 male pre-adolescent and 50 male adolescent school going children were selected randomly from different schools in West Bengal. To find out vulnerable stress of the pre- adolescent and adolescent 't' test was applied to calculate the collected data at 0.05 level of significance. The result showed that there was significant difference on stress between the two categories of students. The adolescents were more stressed than the pre- adolescents' boys.

Keywords

Vulnerability Stress, Pre-Adolescent, Adolescent

1. INTRODUCTION

Now a day, children are more advance than their parents were. Modern education system is able to give tons of information to children effortlessly. This explains the wonder of faster development via technology. This phenomenon is standard today and not to be viewed as giftedness. The traditional form of education started with people studying at home itself, the teachers coming home to impart the education to the wanted ones, later on it went on like the children going to a place called Gurukulam to gain the needed knowledge. With each passing phase development started accelerating gradually. The so called development doesn't necessarily mean that it is for the betterment of the individuals and nation, and so we can say that this enhancement was both a boon and a bane for the society.

In this generation, the attitude of young students about education is changed. The modern education system teaches children but puts on much pressure of passing the exams with 90%+ marks. The stress they get from teachers, parents and peers are incomparable. It is even much harder for some children who can't cope up with the daily lessons and activities in school. Often, little children are deprived of the privileges of being kids like playing and having fun. Later in life, they'll get the pressures of securing jobs in this competitive world.

As observed, this modern generation offers a complex approach for educational system. More books are read, daily homework given, monthly exams, projects, additional curricular activities and others that burden the kids.

We've been seeing those dragging books and bags heavier than they could carry. Imagine a young 7-year-old kid is bombarded with much study pressures and tasks he does not deserve. This was not the case many generations ago. On the part of the parents, teaching a grade school child causes much anxiety, fighting, and long hours of scolding. And the result? Physical and emotional exhaustion both to parents and children. Today, many children have their youths taken away from them by an overly stressful education system. Many of them study not because it will benefit them, or because they even have any incentive to study, but because they fear they will lose out if they don't study hard enough. Would be parents are afraid of letting their future kids suffer the stresses of the education system Meritocracy by right should be a good system, ensuring good social mobility, but when over emphasized, results in an overly competitive climate which is unhealthy and unsustainable. Meritocracy in the job market is understandable, because companies want to get the best employees for themselves. But when it is applied to a service such as education, it is nothing but utter discrimination. While we talk about the traditional system, it was lacking in many things and so the modern education came into force, but how far this modern one is fruitful is still a big debate. Many of the people feel that this latest study structure has become a stress for the students and in this process they have lost their originality and are simply aiming for the marks, leaving their knowledge far behind. Complex modern society has greatly increased the amount of stress adults and children are exposed to. Children are experiencing more stress at younger ages. Even in the womb a child picks up the mother's stress - stress chemicals such as adrenalin and cortisol cross the placenta.

Stress reactivity and stress response styles provide insight into emotional vulnerability. Research has indicated that heightened or blunted physiological stress reactions can predict risk for psychological and physical health challenges, including heart disease, depression, anxiety, and behavioral problems. Although there has been a wealth of research examining the stress response of adolescents, little attention has been given to prepubescent stress response. Because many changes occur in the transition from childhood and adolescent, Brittany E. Evans of the Department of Child and Adolescent Psychiatry/Psychology at Erasmus University Medical Center in the Netherlands wanted to take a closer look at the differences in stress responses in these two groups of young people.

In the same fashion the researcher wants to compare the stress between the Pre-adolescent and Adolescent school going children.

2. STATEMENT OF THE PROBLEM

The purpose of the study was to analyze the vulnerability stress between Pre-Adolescent and Adolescent school going children.

3. METHODOLOGY

The objective of the study was to investigate the vulnerability stress between Pre-adolescent and Adolescent school going children from different school in West Bengal. For this study 50 male Pre-adolescent and 50 male Adolescent were selected randomly. The age of the subject was ranged between 9 to 13 years and 14 to 18 years respectively.

The important in the study was to understand and analyze the vulnerability stress. The investigator have collected the data through a questionnaire formulated by Lyle H. Miller and Alma Dell Smith, Boston University Center, The questionnaire contained 20 questions covering different dimensions towards vulnerability to stress. There were questions having 5 possible answers. The Researcher translated the questionnaire in to Bengali without hampering the spirit, direction and need of the Questions. A pilot study was conducted on a small Sample. After the Pilot study the researcher administered the Questionnaire over 50 Pre adolescent and adolescent school Children. The data were used to calculate by Student's 't' test to obtained the results.

4. FINDING

Table 1: Significance of Differences of Mean Standard Deviation and 't' Test in Vulnerability to Stress between Pre-Adolescent and Adolescent School Going Children

Groups	Mean	Std Deviation	t-Ratio
Pre-adolescent	25.233	3.375	6.821*
Adolescent	35.3	7.18	

*= Significance, $t_{0.05} (98) = 1.98$

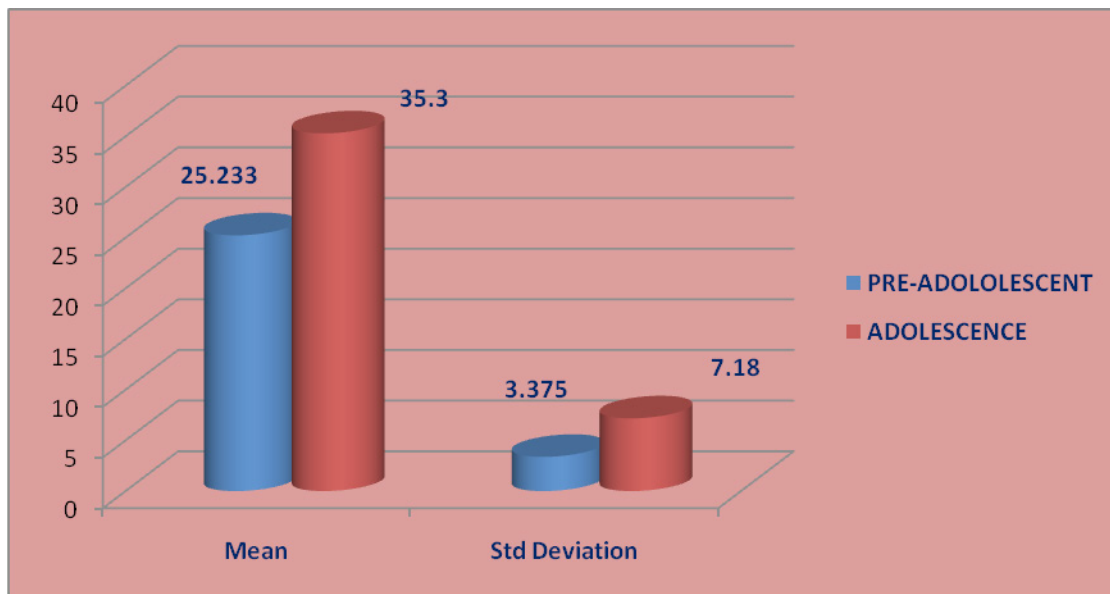


Figure 1: Comparison of Mean, Standard deviation between Pre-adolescent and Adolescent School Going Children

5. DISCUSSION OF FINDING

From the above findings we came to know that the adolescence school boys are voluntarily stressed rather than the pre-adolescent school boys. As the table showed significant difference between the two groups of boys.

Reviewing the various research results related to this study the researcher attributes that Adolescent exhibits a unique type of behavior at their home and Schools, among their playmates or peer. Another factor work in the adolescent period that pre dominating nature, i.e. the feeling of elderness comes. They always try to show their efficiency even in the fields where they are not efficient. The way of representing themselves, analyzing situations decisions makings may not be appropriate in eye of the elder. Sometimes they revolt in accepting suitable suggestions of the elders apprehending that those may come on the way of liberty and freewill.

While summing up it may be said that they are stressed Physically, Psychologically and even emotionally. The educational demand at school, examination, selection of subjects for future studies. All become dominant during the entire span of Adolescent life. Stress influences their state of Emotions and Psychological behavior. The stress also plays some important role on the Adolescents behavior as a result some exhibits introversion while others become extrovert in nature.

The Pre-Adolescents though do not suffer as like adolescents due to the fact that the glandular functions are not that active which may on the way stress them.

Although the pre-adolescent spends a large proportion of his time in school he still looks to his home as the chief source of guidance and support. Parental behavior and attitudes continue to have important influence on his behavior at home and also on his adjustment in school and peer. In this age they have not any pressure to his job settlement. If a child is to get most out of his social interaction in the wider community, he must have a secure and dependable home base, on that he can leave less stress and anxiety, and the one he can return to confidently. The home environment at this stage of life, play a very important role in providing direction to the behavioral patterns, which on becoming a habit, have tremendous impact on his personality. Whether he is going to be honest, loyal, responsible, and having moral courage solely depends on the parental and social adjustment.

6. CONCLUSIONS

Based on the findings and within the limitation of the present study, following conclusions were drawn:

- Adolescent school boys are much more stressed than the Pre-Adolescent school boys.
- Pre-Adolescent school boys are less stressed than Adolescence School Boys.

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Comparison of Aggression and Pre-competitive Anxiety Between Intercollegiate Boxers and Wrestlers

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Abstract

The purpose of the study was compare of aggression and anxiety between boxing and wrestling players. Total 20 male boxing and wrestling players (18–25 years of age) selected from CSJM University intercollegiate tournament. The selected variables were aggression and pre competitive anxiety. The sports competition anxiety test by Rainer Martin was also selected for this study, because it is most reliable, valid and suitable test to measure anxiety of sportsman. Aggression was measured with the help of Sports Aggression Test developed by Prof. Anand Kumar and Mr. Prem Shankar Shukla. The obtained data were analyzed by applying independent 't' test in order to comparison of pre-competitive anxiety and aggression differential between boxing and wrestling male players. The level of significant was set at 0.05. Table 1 show that the no significance difference of pre competitive anxiety between boxing and wrestling players but Table 2 show boxing players has much aggression in comparison to wrestling players.

Keywords

Sports Aggression, Sports Competitive Anxiety, Boxing, Wrestling

1. INTRODUCTION

Modern competitive sports of today demands more emphasis on the training of psychological aspects of sports. The high level performance seen in competitive sports is nothing but a perfect optimum harmonious relationship between one's psychological preparedness and technical preparation.

Performance in sports is no longer dependent on physiological wellbeing of the athlete. It is well established by now that there are numerous psychological factors which effect & improve sports performance like, individual differences among the athletes, personality, intelligence, attitude, motivating, aggression, mental imagery, group dynamics etc. All these factors may affect the sports performance in both, positive and negative way.

Aggression is an attack or harmful action, specially an unprovoked attack by one individual against another. Aggression is a type of behaviour that is meant to intimidate or injure an animal of the same species or of a competition species but is not predatory. Aggression may be displayed during mating rituals or to defend territory, to win game or to disturb as by the erection of fins by fish and feathers by birds from the above discussion that psychological characteristics are of prime important for sportsman. Behaviour directed toward the goal of harming or injuring another living being who is motivated to avoid such treatment.

Sports competition anxiety is the tendency to perceive competition situation as threatening and to respond to this situation with feeling of apprehension or tension prior to a competition. Anxiety is a state of mind in which the individual responds with discomfort to some event that has occurred or is going to be occurring. The person's worries about event, their occurrence and consequences, in general are the anxiety.

Anxiety affects psychological and physiological working of the organism in numerous ways. For instance, anxious individuals are said to have reduced attention control. During heightened activity (anxiety inclusive) attention cannot remain one-pointed, it is distributed to various aspects of the organismic activity which is chaotic and intense. There is numbing effect on the individual's judgement. Anxiety often results in narrowing of the field of attention as relevant cues are excluded.

Tara Edwards and Lew Hardy (1996) conducted a study in which he tried to examine Netball players and found that facilitating effect of anxiety upon performance did not emerge directly through the direction scale but a significant interaction emerged from the two factor cognitive anxiety and physiological arousal quadrant analysis suggesting that anxiety may enhance performance as proposed by catastrophic model predictions.

Jones, Swain and Cole (1991) conducted study on university athletes and found that in case of cognitive anxiety males showed no changes across time through female showed a progressive increase as the competition is neared. Males and females showed the same patterning in somatic anxiety with increase occurring only the day of competition. Self-confidence scores revealed a reduction in self-confidence as the competition neared in both gender but there was greater decrease in females than males.

2. CRITERION MEASURES

2.1. Sports Competition Anxiety Test (SCAT)

The sports competition anxiety test by Rainer Martin was also selected for this study, because it is most reliable, valid and suitable test to measure anxiety of sportsman.

Aggression: Aggression was measured with the help of Sports Aggression Test developed by Prof. Anand Kumar and Mr. Prem Shankar Shukla.

Procedure: Total 20 male boxing and wrestling players (18-25 years of age) selected from CSJM University intercollegiate tournament. The selected variables were aggression and pre competitive anxiety. After obtaining approval for the human subjects protocol from the tournament organizer, prospective team coaches were contacted by phone about the data taken.

2.2. Sports Competition Anxiety Test (SCAT)

The sports competition anxiety test (SCAT) was administered few hours before the competition. Instruction also given specially to answer all the items then questionnaire distributed to groups. 10 minute time was given to answer the question. Scoring: The questionnaire has 15 items. For each item in the questionnaire one of three responses are possible: Hardly Ever, Sometimes and Often.

The 10 test items are 2, 3, 5, 6, 8, 9, 11, 12, 14 and 15. The spurious items: 1, 4, 7, 10 and 13 are not scored. Items 23, 5, 8, 9, 12, 14 and 15 are worded and are scored as according to following Key: Hardly Ever-1, Sometimes-2, Often-3. Items 6 and 11 are scored according following key: Often-1, Sometimes-2, Hardly Ever-3.

Aggression: The sports aggression was measured by Sports Aggression Inventory developed by Prof. Anand Kumar and Prem Shankar Shukla. This questionnaire consist to 25 items in which 13 items key "Yes" were 1, 4, 5, 6, 9, 12, 14, 15, 16, 18, 21, 22, 24, 25 and rests of 12 key "No". The statements which key "No" are 2, 3, 7, 8, 10, 11, 13, 17, 19, 20 and 23.

3. STATISTICAL TECHNIQUE

The obtained data were analyzed by applying independent 't' test in order to comparison of pre-competitive anxiety and aggression differential between boxing and wrestling male players. The level of significant was set at 0.05.

4. RESULT

Table 1: Comparison of Pre-Competitive Anxiety between Intercollegiate Boxers and Wrestlers

Games	N	Mean	SD	t'
Boxing	10	19.88	1.35	1.45
Wrestling	10	21.03	1.97	

t' (2,18) = 2.10

Table 2: Comparison of Aggression between Intercollegiate Boxers and Wrestlers

Games	N	Mean	SD	t'
Boxing	10	22.65	3.21	2.97*
Wrestling	10	17.24	3.89	

t' (2,18) = 2.10

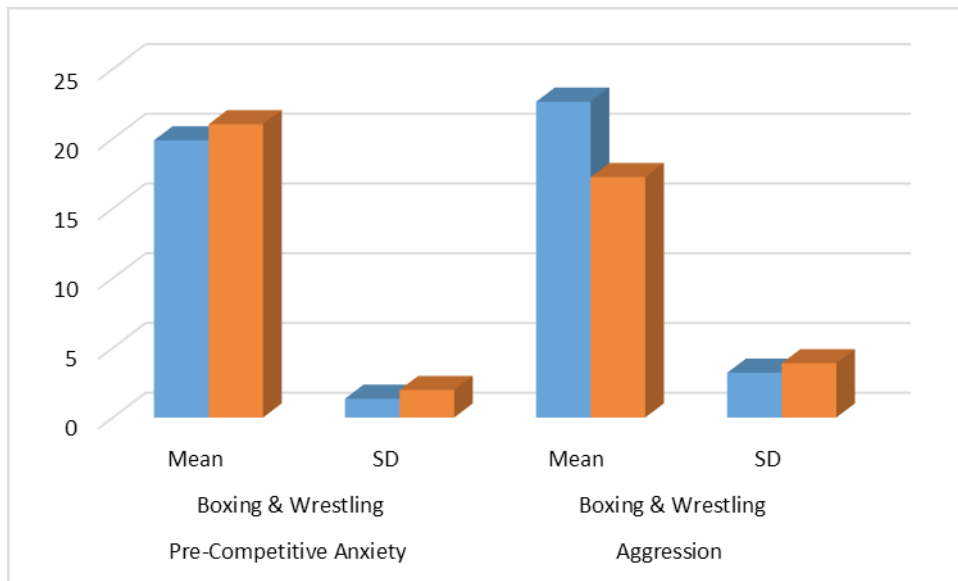


Figure 1: Illustration of Mean and Standard Deviation of Aggression and Anxiety of Intercollegiate Boxers and Wrestlers

5. FINDINGS

Table 1 revealed that there is no significant difference of Pre-Competitive Anxiety between boxing and wrestling players because the calculated value 1.45 was less than the table value 2.10 at 0.05 level of significance.

Table 2 revealed that the there is significance difference of aggression between boxing and wrestling because the calculated value was 2.97 more than the table value 2.10 at 0.05 level of significance.

6. DISCUSSION OF FINDINGS

Table 1 show that the no significance difference of pre competitive anxiety between boxing and wrestling players but Table 2 show boxing players have much aggression in comparison to wrestling players. In combative and some contact sports the aspiring athlete is taught basic skills in interpersonal aggression and lavishly rewarded when they are effectively applied in competition. Gaebelin & Taylor (1971) suggested that while competition increase the readiness participant to response aggressively behaviour depends upon specific stimuli. The investigation conducted by Johnson (1972), Hutton and Johnson (1954), Ogilvie and Tutko (1965) and Singer (1969) all suggest that the trait of aggressiveness is more prevalent in successful athletes than it is less successful.

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Differential Impact of Different Games on Personality Traits of Elite Players

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Abstract

The objective of the study was to investigate the differential impact of participating in different games on four selected personality traits (Psychoticism, Extraversion, Neuroticism and Lie) of elite male players. In this study four hundred elite male players were selected. All the subjects were selected from eight different games. Each group consisted of unequal sample size. 13 subjects were selected from Hockey, 18 subjects were selected from Athletics, 23 subjects were selected from Handball, 12 subjects were selected from Kho-Kho, 6 subjects were selected from Badminton, 13 subjects were selected from Softball, 9 subjects were selected from Powerlifting and 6 subjects were selected from Boxing. The study was conducted by taking Personality traits (Psychoticism, Extraversion, Neuroticism and Lie) as an independent variable (I.V.) and by taking eight different games as dependent variable (D.V.). The study was conducted by taking static group comparison design consisting of eight groups (player of eight different games). Descriptive statistics and one way analysis of variance were used. The results showed that all four traits of personality i.e. Psychoticism, Extraversion, Neuroticism and Lie, insignificant difference was found among the players of different games .05 level of significance.

Keywords

Psychoticism, Extraversion, Neuroticism and Lie.

1. INTRODUCTION

In sports and games, the major research thrust is to identify the personality traits of athletes. Regarding this several personality traits have been identified. Personality is highly complex term and also has various meanings and interpretations. The term personality represents the characteristics or tendency of any individual to act or behave in a certain way. Individual differences are also found in personality (Alderman R.B., 1974). According to the traits theory, there are two assumptions. First assumption is that person's personality consisted of various key factors or traits. Second assumption reveal that each trait differs due to genetic differences (Javris M., 1999). Since, there are different traits of personality; it is very difficult to consider all the traits to find out the differential impact of different games on personality traits. Psychoticism, Extraversion, Neuroticism and Lie are the new thrust areas of personality in which new investigation are required.

1.1. Objective of the Study

The objective of the study was to investigate the differential impact of participating in different games on four selected personality traits (Psychoticism, Extraversion, Neuroticism and Lie) of elite male player.

2. METHODOLOGY

Selection of subjects: In this study, four hundred Elite Male Players were selected. All the subjects were selected from eight different games. Each group consisted of unequal sample size. 13 subjects were selected from Hockey, 18 subjects were selected from Athletics, 23 subjects were selected from Handball, 12 subjects were selected from Kho-Kho, 6 subjects were selected from Badminton, 13 subjects were selected from Softball, 9 subjects were selected from Powerlifting and 6 subjects were selected from Boxing.

Selection of games: On the basis of availability of games and suitability of researcher, eight games were selected i.e. Hockey, Athletics, Handball, Kho-Kho, Badminton, Softball, Powerlifting and Boxing.

Selection of variables: The study was conducted by taking Personality traits (Psychoticism, Extraversion, Neuroticism and Lie) as an independent variable (I.V.) and by taking eight different games as dependent variable (D.V.).

Design of the study: "Static group comparison design" (Clarke, D. H., & Clarke, H. H., 1984) was used to conduct this study, since study comprising of eight groups belonging to eight different games and no manipulation was given to subjects.

Statistical Analysis: The study was conducted by taking static group comparison design consisting of eight groups (player of eight different games). Descriptive statistics and one way analysis of variance were used at 0.05 level.

Table 1 Shows the descriptive Statistics related to four traits of personality belonging to players of different games.

Table 1: Descriptive Statistics Related to Four Traits of Personality

Variables	N	Mean	Stander Deviation	Stander Error	95% Confidence Interval for Mean		
					Lower Bound	Upper Bound	
Psychoticism	Hockey	13	4.15	2.85	.79	2.42	5.87
	Athletics	18	4.55	3.34	.78	2.89	6.22
	Handball	23	6.30	4.00	.83	4.57	8.03
	Kho-Kho	12	3.00	2.41	.69	1.46	4.53
	Badminton	6	4.16	3.65	1.49	.32	8.00
	Softball	13	3.07	2.84	.78	1.35	4.79
	Powerlifting	9	3.88	2.31	.77	2.10	5.66
	Boxing	6	3.16	1.94	.79	1.12	5.20
	Total	100	4.36	3.29	.32	3.70	5.01

In case of the first trait i.e. Psychoticism, the observed values of hockey player are 4.15, 2.85, .79, 2.42 and 5.87 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the athletics, the observed values are 4.55, 3.34, .78, 2.89 and 6.22 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the handball, the observed values are 6.30, 4.00, .83, 4.57 and 8.03 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Kho-kho, the observed values are 3.00, 2.41, .69, 1.46 and 4.53 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the badminton, the observed values are 4.16, 3.65, 1.49, .32 and 8.00 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Softball, the observed values are 3.07, 2.84, .78, 1.35 and 4.79 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Powerlifting, the observed values are 3.88, 2.31, .77, 2.10 and 5.66 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case

of the Boxing, the observed values are 3.16, 1.94, .79, 1.12 and 5.20 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean.

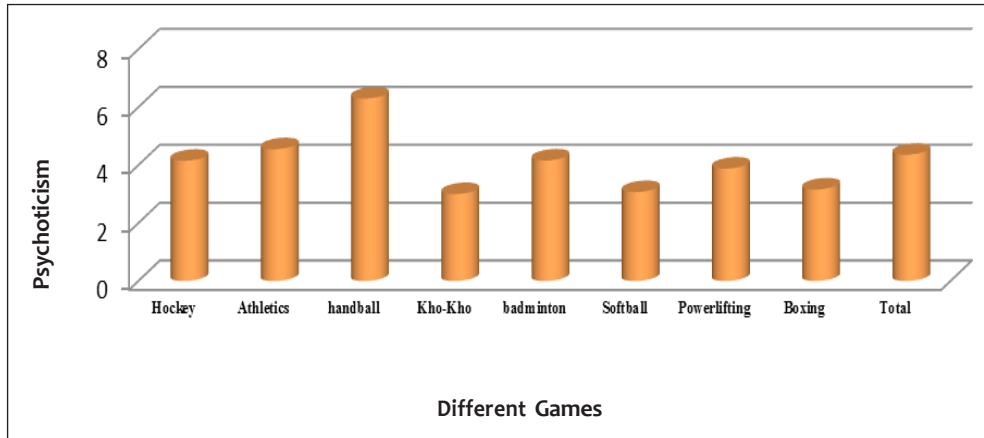


Figure 1: Graphical Representation of Psychoticism Among the Players of Different Games

Table 2: Descriptive Statistics Related to Four Traits of Personality

Variables	N	Mean	Stander Deviation	Stander Error	95% Confidence Interval for Mean		
					Lower Bound	Upper Bound	
Extraversion	Hockey	13	13.00	2.23	.62	11.64	14.35
	Athletics	18	13.72	2.44	.57	12.50	14.93
	handball	23	13.00	2.04	.42	12.11	13.88
	Kho-kho	12	12.66	2.60	.75	11.01	14.32
	Badminton	6	13.16	2.48	1.01	10.56	15.77
	Softball	13	13.46	1.56	.43	12.51	14.40
	Powerlifting	9	14.33	1.58	.52	13.11	15.54
	Boxing	6	14.66	2.06	.84	12.49	16.83
	Total	100	13.38	2.15	.21	12.95	13.80

In case of the second trait i.e. Extraversion, the observed values of Hockey player are 13.00, 2.23, .62, 11.64 and 14.35 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Athletics, the observed values are 13.72, 2.44, .57, 12.50 and 14.93 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Handball, the observed values are 13.00, 2.04, .42, 12.11 and 13.88 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Kho-Kho, the observed values are 12.66, 2.60, .75, 11.01 and 14.32 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the badminton, the observed values are 13.16, 2.48, 1.01, 10.56 and 15.77 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Softball, the observed values are 13.46, 1.56, .43, 12.51 and 14.40 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Powerlifting, the observed values are 14.33, 1.58, .52, 13.11 and 15.54 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Boxing, the observed values are 14.66, 2.06, .84, 12.49 and 16.83 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean.

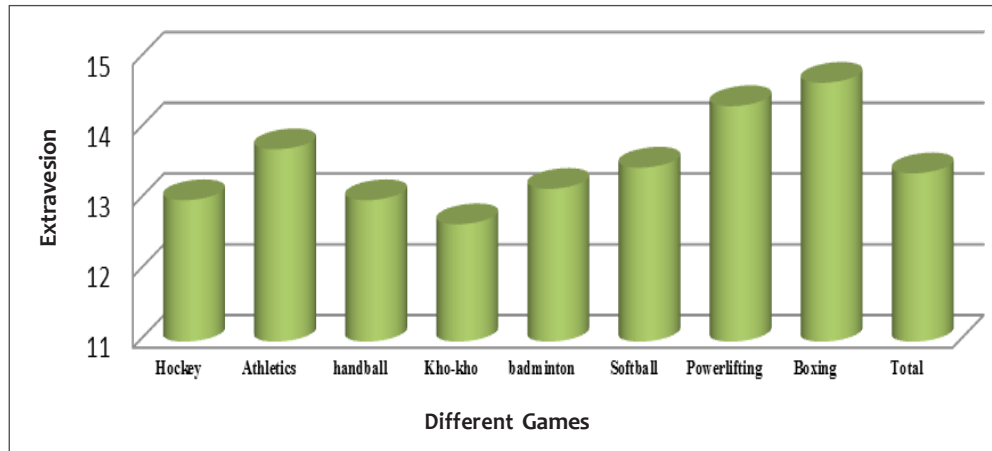


Figure 2: Graphical Representation of Extraversion Among the Players of Different Games

Table 3: Descriptive Statistics Related to Four Traits of Personality

Variables	N	Mean	Stander Deviation	Stander Error	95% Confidence Interval for Mean		
					Lower Bound	Upper Bound	
Neuroticism	Hockey	13	6.38	2.46	.68	4.89	7.87
	Athletics	18	6.22	3.26	.76	4.59	7.84
	handball	23	6.60	2.87	.59	5.36	7.85
	Kho-kho	12	5.75	1.65	.47	4.69	6.80
	Badminton	6	6.16	2.78	1.13	3.24	9.09
	Softball	13	5.76	2.35	.65	4.34	7.18
	Powerlifting	9	6.44	2.40	.80	4.59	8.29
	Boxing	6	5.16	1.72	.70	3.35	6.97
	Total	100	6.17	2.55	.25	5.66	6.67

In case of the thread trait i.e. Neuroticism, the observed values of hockey player are 6.38, 2.46, .68, 4.89 and 7.87 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Athletics, the observed values are 6.22, 3.26, .57, 4.59 and 7.84 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Handball, the observed values are 6.60, 2.87, .59, 5.36 and 7.85 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Kho-Kho, the observed values are 5.75, 1.65, .47, 4.69 and 6.80 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the badminton, the observed values are 6.16, 2.78, 1.13, 3.24 and 9.09 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Softball, the observed values are 5.76, 2.35, .65, 4.34 and 7.18 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Powerlifting, the observed values are 6.44, 2.40, .80, 4.59 and 8.29 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Boxing, the observed values are 5.16, 1.72, .70, 3.35 and 6.97 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean.

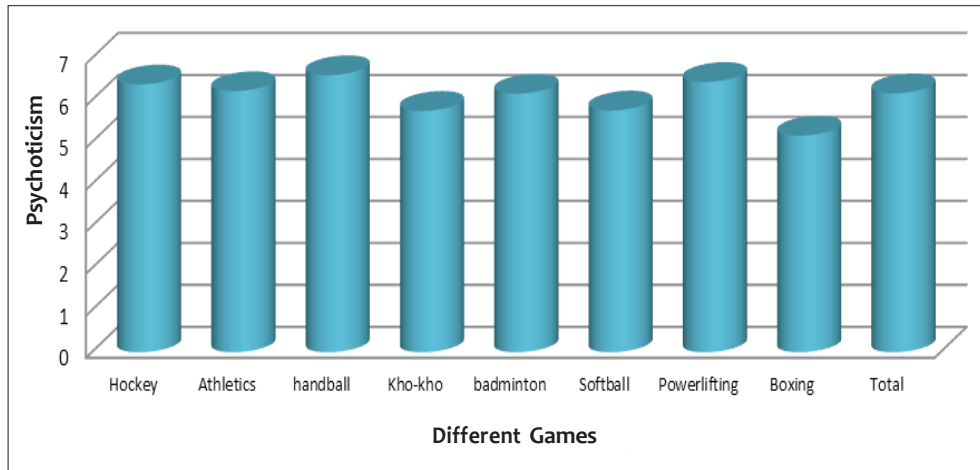


Figure 3: Graphical Representation of Neuroticism Among the Players of Different Games

Table 4: Descriptive Statistics Related to Four Traits of Personality

Variables	N	Mean	Stander Deviation	Stander Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Lie						
Hockey	13	8.46	1.45	.40	7.58	9.33
Athletics	18	8.05	1.73	.40	7.19	8.91
Handball	23	8.39	2.84	.59	7.16	9.61
Kho-kho	12	7.58	2.64	.76	5.90	9.26
Badminton	6	6.83	2.78	1.13	3.90	9.75
Softball	13	8.46	1.39	.38	7.62	9.30
Powerlifting	9	9.55	1.013	.33	8.77	10.33
Boxing	6	7.33	1.36	.55	5.89	8.76
Total	100	8.20	2.13	.21	7.77	8.62

In case of the fourth trait i.e. Lie, the observed values of hockey player are 8.46, 1.45, .40, 7.58 and 9.33 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Athletics, the observed values are 8.05, 1.73, .40, 7.19 and 8.91 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Handball, the observed values are 8.39, 2.84, .59, 7.16 and 9.61 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Kho-Kho, the observed values are 7.58, 2.64, .76, 5.90 and 9.26 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the badminton, the observed values are 6.83, 2.78, 1.13, 3.90 and 9.75 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In case of the Softball, the observed values are 8.46, 1.39, .38, 7.62 and 9.30 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean. In of case the Powerlifting, the observed values are 9.55, 1.01, .33, 8.77 and 10.33 respectively for the measures of mean, standard deviation, standard Error, Lower Bound, Upper Bound of 95% confidence Interval for mean. In Boxing, the observed values are 7.33, 1.36, .55, 5.89 and 8.76 respectively for the measures of mean, standard deviation, standard Error, Lower Bound and Upper Bound of 95% confidence Interval for mean.

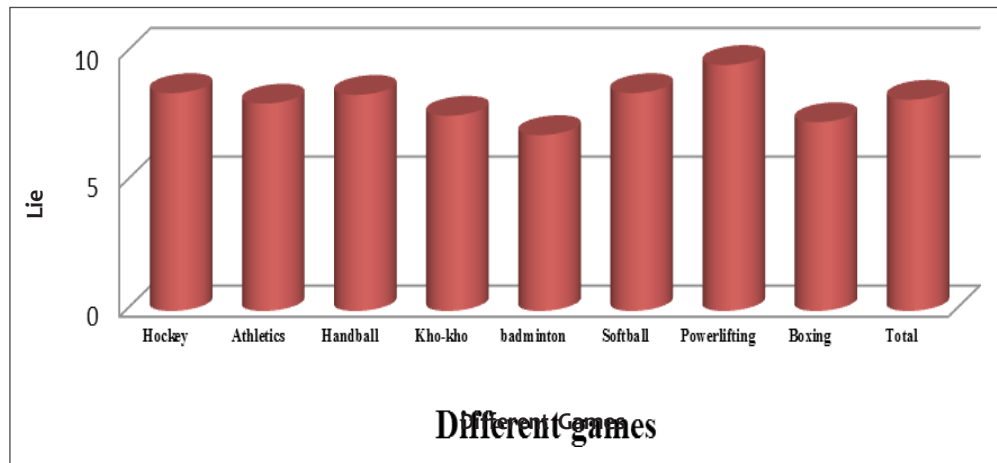


Figure 4: Graphical Representation of Lie Among the Players of Different Games

Table 5: Analysis of Variance (ANOVA) Comparison of Psychoticism, Extraversion, Neuroticism and Lie Among the Players of Different Games

		Sum of Squares	Df	Mean Square	F	Sig.
Psychoticism	Between Groups	142.55	7	20.36	2.014	.062
	Within Groups	930.48	92	10.11		
	Total	1073.04	99			
Extraversion	Between Groups	31.88	7	4.55	.975	.454
	Within Groups	429.67	92	4.67		
	Total	461.56	99			
Neuroticism	Between Groups	15.99	7	2.28	.333	.937
	Within Groups	632.11	92	6.87		
	Total	648.11	99			
Lie	Between Groups	39.81	7	5.68	1.276	.271
	Within Groups	410.19	92	4.45		
	Total	450.00	99			

Table 5 reveals the ANOVA result related to four traits of personality.

In case of Psychoticism, F-value of 2.014 was found insignificant at .05 level of significance.

In case of Extraversion also insignificant difference was found among the players of different games since F-value of .975 was fund insignificant at .05 level of significance.

In case of Neuroticism, F-value of 1.276 was found insignificant at .05 level of significance.

In case of Lie also insignificant difference was found among the players of different games since F-value of .333 was fund insignificant at .05 level of significance.

3. DISCUSSION OF FINDINGS

The study was conducted by selected four personality traits i.e. Psychoticism, Extraversion, Neuroticism and Lie. These traits were compare in eight different games i.e. Hockey, Athletics, Handball, Kho-kho, Badminton, Softball, Powerlifting and Boxing. In case of the all selected traits, no significant difference was found among the players selected games. This might be due the reason that all the selected personality traits are equally different by the participation in different games. Dorek, F., (2015) found significant relationship between personality subscale and sportpersonship orientation. In the present study insignificant difference among different games in relation to personality traits might be due to equal level of sportpersonship possessed by the players of different games.

Saied, R.T (2013) conducted a study to compare personality characteristics in athletics and non-athletics. Results revealed that athletics scored more in Extraversion, agreeableness and consciences; on the other hand they scored low in neuroticism. On the basis of the above mentioned study, it may be concluded that participation in sports have significant effect on personality traits.

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Estimation of Weight Lifters Performance on the Basis of Balance Abilities and Anaerobic Power: Delimited to 56 Kilogram Weight Category

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Abstract

The objective of the study was to establish regression equation for predicting Dependent Variable (weight lifter performance belonging to 56 kilogram weight category) on the basis of Independent Variables (static balance, dynamic balance and anaerobic power). The subjects for this study were selected from Different Universities. A total of 15 male weight lifters belonging to 56 kilogram weight category from Indian Universities were selected. Keeping in the mind about specific purpose of the study, the following variables were selected: 1) Balance Abilities (Static & Dynamic) and 2) Anaerobic Power. For predicting Dependent Variable (weight lifter performance belonging to 56 kilogram weight category) on the basis of Independent Variables (static balance, dynamic balance and anaerobic power), Multiple Regression Analysis was used and one regression model was established. Established regression model is: Weight Lifters performance (56 kilogram) = $-42.85 + .697 \times \text{Anaerobic Power}$.

Keyword

Static Balance, Dynamic Balance and Anaerobic Power

1. INTRODUCTION

Weight lifting is one of the oldest and the easiest method of testing physical strength of individuals. The more weight one could lift, the more powerful he was considered. At present lifters are grouped into different categories as per their body weights. The participant lifters are required to lift a weighted bar by two different methods and techniques, the snatch and clean and jerk. The participants are allowed maximum of three attempts in each type of lift. The winners are declared on the basis of total weight lifted in both styles. If weights lifted by two participants are equal then the lifter with lower body weight is declared as winner (Kumar, M., 1993).

Balance ability is the most important trait for any sportsmen. In handball also it has great significance. Lee, B., (2010) described balance ability as a foundation of all movements. All the movements originate from the balance ability. In any sports, players lose centre of gravity and try to regain it to maintain the balance. During play this is performed several times. There is a continuous requirement for increasing anaerobic capacity to be defined and measured independently of anaerobic power. The peak rate of energy produced via anaerobic metabolism (anaerobic power) is difficult to measure directly and is therefore deduced from the peak power output measured during brief (<30s) sprint-type exercise bouts. Nevertheless, coaches and scientists are interested not only in the peak power output that can be instantly generated but also in the total amount of energy that can be produced via the anaerobic energy systems (i.e., anaerobic capacity). (Tanner, R. K. & Gore, C. J., 2013).

2. OBJECTIVE

The objective of the study was to establish regression equation for predicting Dependent Variable (weight lifter performance belonging to 56 kilogram weight category) on the basis of Independent Variables (static balance, dynamic balance and anaerobic power).

3. METHODOLOGY

3.1. Subjects

The subjects for this study were selected from Different Universities. A total of 15 male weight lifters belonging to 56 kilogram weight category from Indian Universities were selected.

3.2. Variables

Keeping in the mind about specific purpose of the study, the following variables were selected:

1. Balance Abilities (Static & Dynamic)
2. Anaerobic Power

3.3. Statistical Techniques Used

For predicting Dependent Variable (weight lifter performance belonging to 56 kilogram weight category) on the basis of Independent Variables (static balance, dynamic balance and anaerobic power), Multiple Regression Analysis was used.

3.4. Findings of the study

Table 1 shows the descriptive statistics of 56 kilogram Weight category Weight Lifters in relation to all selected variables.

Table 1: Descriptive Statistics of Weight Lifters Belonging to 56 Kilogram Weight Category

Measures	Weight Lifters and all Selected Variable's Performance			
	Weight Lifters Performance (in points)	Static Balance (in seconds)	Dynamic Balance (in Points)	Anaerobic Power (in kg.-m/sec)
Mean	21.60	8.21	61.60	92.53
Standard Deviation	2.87	2.45	5.13	4.10
Skewness	-.11	.35	-.20	-.28
Standard Error of Skewness	.58	.58	.58	.58
Kurtosis	-1.60	-.55	-.68	-1.72
Standard Error of Kurtosis	1.12	1.12	1.12	1.12

The obtained descriptive measures related to Weight Lifters Performance of 56 kilogram Weight category are mean = 21.60; standard deviation = 2.87; Skewness = -.11; standard error of Skewness = .58; kurtosis = -1.60; and standard error of kurtosis = 1.12.

The obtained descriptive measures related to Static Balance of 56 kilogram Weight category are mean = 8.21; standard deviation = 2.45; Skewness = .35; standard error of Skewness = .58; kurtosis = -.55; and standard error of kurtosis = 1.12.

The obtained descriptive measures related to Dynamic Balance of 56 kilogram Weight category are mean = 61.60; standard deviation = 5.13; Skewness = -.20; standard error of Skewness = .58; kurtosis = -.68; and standard error of kurtosis = 1.12.

The obtained descriptive measures related to Anaerobic Power of 56 kilogram Weight category are mean = 92.53; standard deviation = 4.10; Skewness = -.28; standard error of Skewness = .58; kurtosis = -1.72; and standard error of kurtosis = 1.12.

In case of Weight Lifters performance and all the selected variables, the value of Skewness and kurtosis lies in the negative to positive range which is obtained by multiplying the standard error of Skewness and standard error of kurtosis by two.

In case of Weight Lifters performance, obtained range of Skewness from negative to positive side is -1.16 to 1.16, the value of Skewness (-.11) lie in this range. In case of Weight Lifters performance, obtained range of kurtosis from negative to positive side is -2.24 to 2.24. The value of kurtosis (-1.60) lie in this range.

In case of Static Balance obtained range of Skewness from negative to positive side is -1.16 to 1.16, the value of Skewness (.35) lie in this range. In case of Static Balance obtained range of kurtosis from negative to positive side is -2.24 to 2.24. The value of kurtosis (-.55) lie in this range.

In case of Dynamic balance obtained range of Skewness from negative to positive side is -1.16 to 1.16, the value of Skewness (-.20) lie in this range. In case of Dynamic Balance obtained range of kurtosis from negative to positive side is -2.24 to 2.24. The value of kurtosis (-.68) lie in this range.

In case of Anaerobic Power obtained range of Skewness from negative to positive side is -1.16 to 1.16, the value of Skewness (-.28) lie in this range. In case of Anaerobic Power obtained range of kurtosis from negative to positive side is -2.24 to 2.24. The value of kurtosis (-1.72) lie in this range.

From the above mentioned observations the data possesses normality.

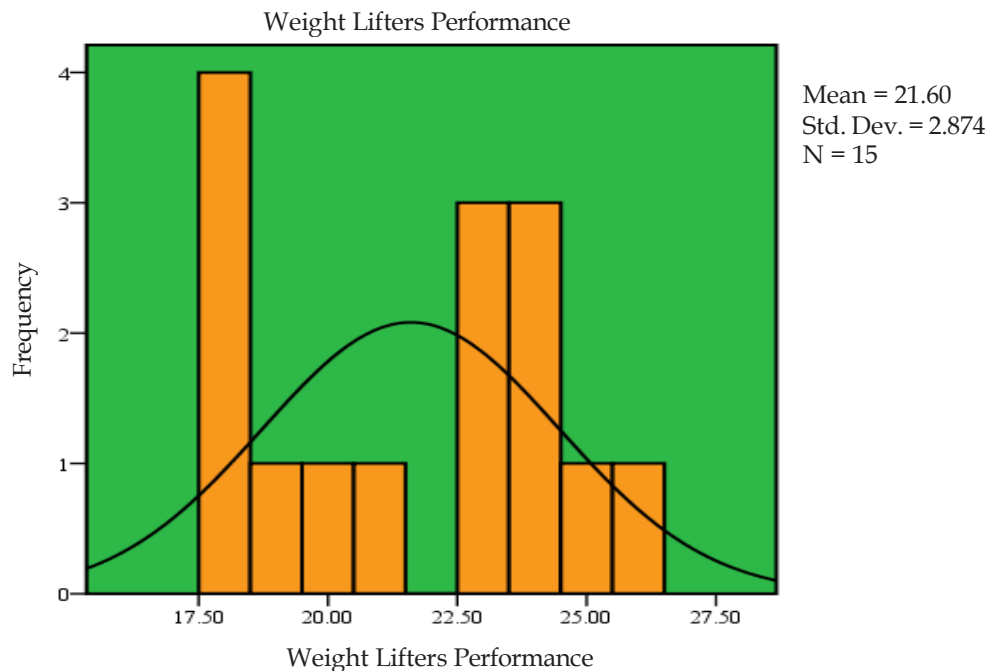


Figure. 1: Histogram with Normal Curve in Relation to Performance of 56 Kilogram Weight Category Weight Lifters

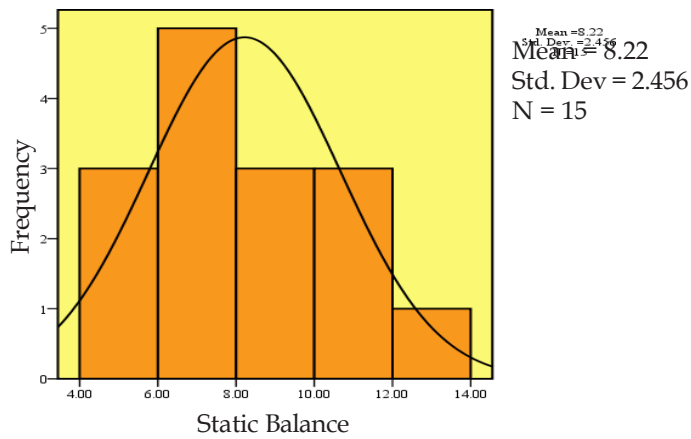


Figure 2: Histogram with Normal Curve in Relation to Static Balance of 56 Kilogram Weight Category Weight Lifters

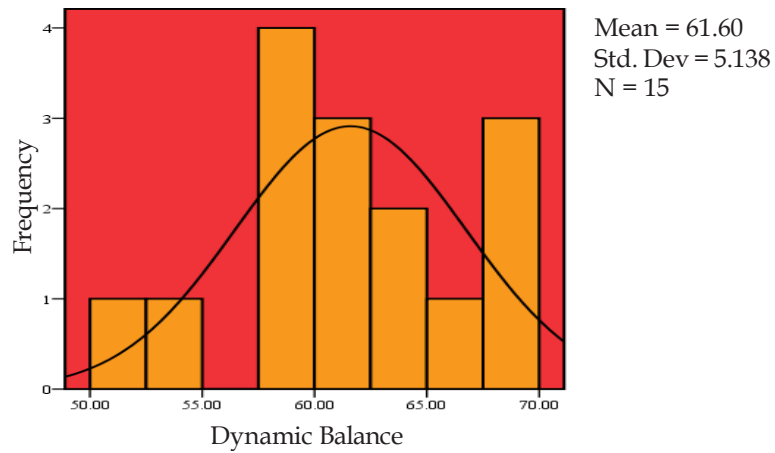


Figure 3: Histogram with Normal Curve in Relation to Dynamic Balance of 56 Kilogram Weight Category Weight Lifters

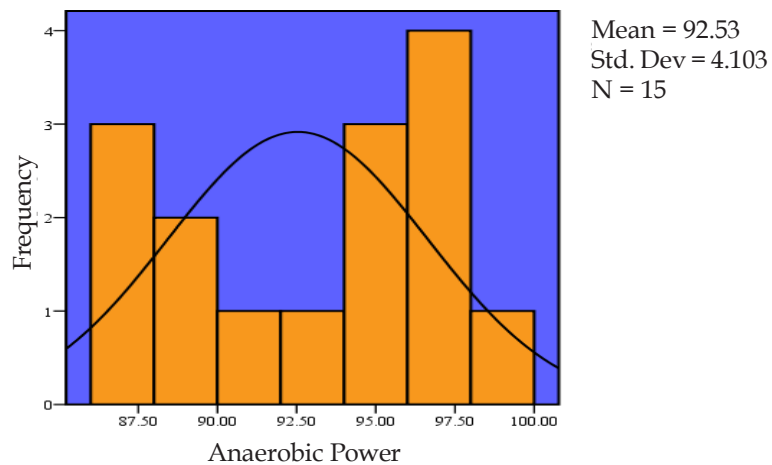


Figure 4: Histogram with Normal Curve in Relation to Anaerobic Power of 56 Kilogram Weight category Weight Lifters

Descriptive statistics as well as histogram with normal curve belonging to Weight Lifters performance and selected variables of 56 kilogram Weight category satisfies the normal distribution of data. So multiple linear regression

analysis was applied to estimate the performance of 56 kilogram Weight Lifters on the basis of Balance abilities and Anaerobic Power.

Multiple Linear Regression Analysis related to 56 kilogram Weight category of Weight Lifters on the basis of Balance Abilities and Anaerobic Power

Table 2: Model Summary of 56 Kilogram Weight Category for the Estimation of Weight Lifters Performance on the Basis of Balance Abilities and Anaerobic Power

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate	Durbin-Watson
1	.99	.98	.98	.30	1.37
a. Predictors: (Constant), Anaerobic Power					
b. Dependent Variable: Weight Lifters Performance					

Model summary in Table 2 reveal the relationship of independent (predictors) and dependent variables (Weight Lifters performance) of given regression model by stepwise method of linear regression. In this model summary, two values are important i.e. R and R Square. Value of R (.99) shows the relationship of Weight Lifters performance and Anaerobic Power. Value of R Square (.989) shows that 98% performance of Weight Lifters is explained by Anaerobic Power.

Table 3: ANOVA Table of 56 Kilogram Weight Category Weight Lifters

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	114.37	1	114.37	1212.24	.00
	Residual	1.22	13	.094		
	Total	115.60	14			
a. Predictors: (Constant), Anaerobic Power						
b. Dependent Variable: Weight Lifters Performance						

Table 3 of ANOVA tells about the utility of established regression model for estimating Weight Lifters performance on the basis of Anaerobic Power (only one model was established). F-value of 1212.24 was found significant at .05 level. This shows that established equation is useful.

Table 4: Coefficients of Multiple Linear Regression Analysis of 56 Kilogram Weight Category Weight Lifters for Estimation of Performance on the Basis of Balance Abilities and Anaerobic Power

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Standard Error	Beta		
1	(Constant)	-42.85	1.85		-23.12	.00
	Anaerobic Power	.697	.02	.99	34.81	.00
a. Dependent Variable: Weight Lifters Performance						

Table 4 reveal that unstandardized coefficients for constant (B = -42.85) was found to be significant at .05 level. Unstandardized coefficients for Anaerobic Power (B = .697) was also found significant at .05 level.

Table 5: Coefficients of Excluded Variables of Multiple Linear Regression Analysis of 56 Kilogram Weight Category Weight Lifters for Estimation of Performance on the Basis of Balance Abilities and Anaerobic Power

Model		Beta In	T	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Static Balance	-.005a	-.16	.87	-.04	.84
	Dynamic Balance	.036a	1.20	.25	.32	.89
a. Predictors in the Model: (Constant), Anaerobic Power						
b. Dependent Variable: Weight Lifters Performance						

Table 5 shows the excluded variables after applying stepwise method to estimate Weight Lifters performance of 56 kilogram Weight category on the basis of Balance Abilities and Anaerobic Power.

The excluded variables are Static Balance and Dynamic Balance.

The established regression equation to estimate Weight Lifters performance on the basis of Balance Abilities and Anaerobic Power belonging to 56 kilogram Weight category.

Model I

Weight Lifters performance (56 kilogram) = $-42.85 + .697 \times \text{Anaerobic Power}$.

Testing assumptions to apply multiple linear regression analysis to verify the generalization of established equation related to 56 kilogram Weight category of Weight Lifters.

Four assumptions were tested to apply multiple linear regression analysis for the generalization of the results of estimation Weight Lifters performance on the basis of Balance Abilities and Anaerobic Power in relation to 56 kilogram Weight category. These assumptions are related to outliers, independence of data points, constant variance and normality of residuals.

Table 6: Table Showing Residual Statistics in Relation to 56 Kilogram Weight Category

	Minimum	Maximum	Mean	Standard Deviation	N
Predicted Value	17.74	25.40	21.60	2.85	15
Residual	-.44	.59	.00	.29	15
Standardized Predicted Value	-1.34	1.33	.00	1.00	15
Standardized Residual	-1.44	1.92	.00	.96	15

a. Dependent Variable: Weight Lifters Performance

Table 6 of standardized residual shows the minimum (-1.44) and maximum (1.92) score. This lies in the acceptable range. The assumption of outlier is fulfilled.

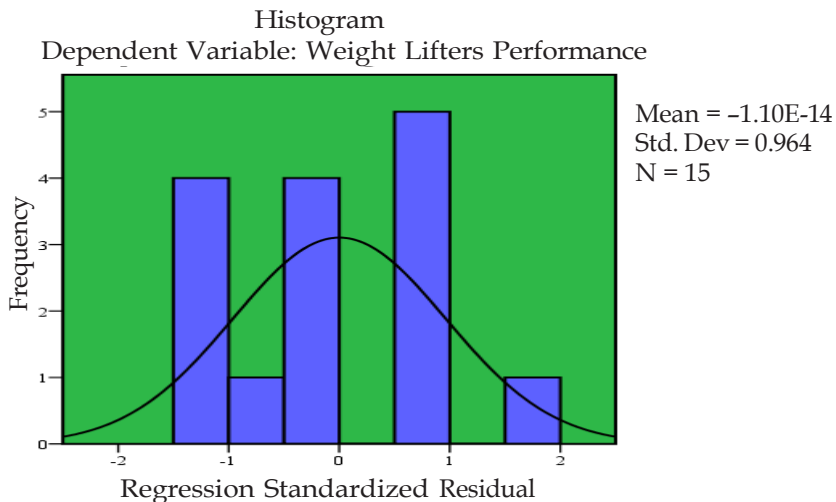


Figure 5: Histogram with Normal Curve Related to the Residuals of 56 Kilogram Weight Category

Figure 5 and 6 shows the histogram with normal curve and Q.Q. Plots related to 56 kilogram Weight category. This shows that distribution of residuals related to 56 kilogram category is normal in nature.

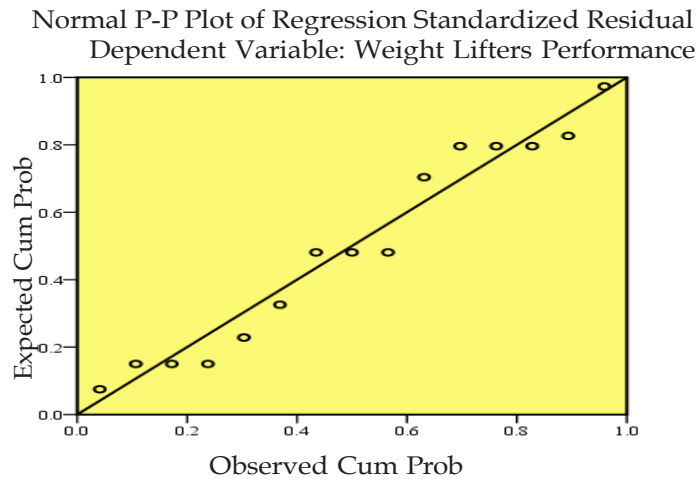


Figure 6: Q.Q. Plots Related to the Residuals of 56 Kilogram Weight Category

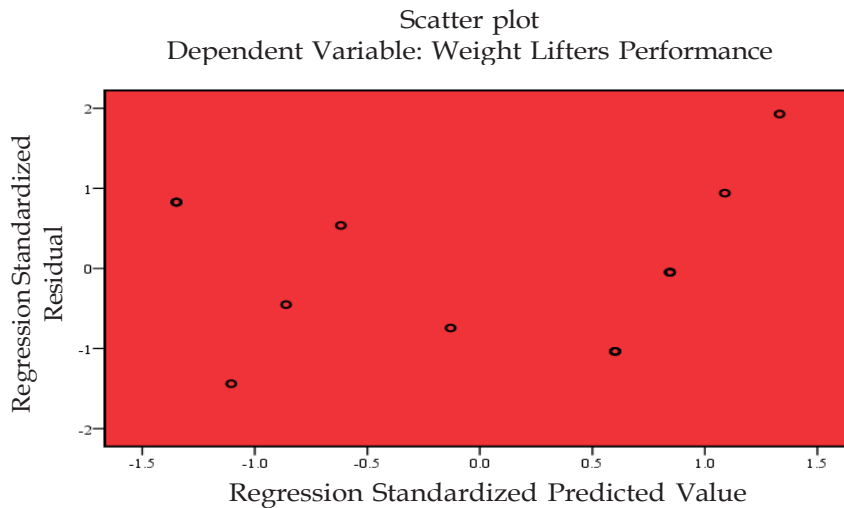


Figure 7: Scatter Plot Showing Constant Variance Related to the Residuals of 56 Kilogram Weight Category

Figure 7 of scatter plot shows that in 56 kilogram Weight category constant variance is found in relation to residuals. Last and fourth assumption of independent of data point is tested by Durbin-Watson test (given in Table 2). The value of 1.37 shows that neither strong negative nor is strong positive correlation was found.

Since all the assumptions are fulfilled, results of the study may be generalized.

4. DISCUSSION OF THE FINDINGS

Anaerobic power was found the main predictor for Weight lifting performance. Singh, R. (2013) conducted a study to predict Weight lifting performance on the basis of anthropometric characteristics. In the study, height and left arm length were found best predictors to predict Weight lifting performance. In the present study, the best predictor was found Anaerobic power. This might be due to the reason that Anaerobic power may have positive relationship with height and left arm length. Another study was conducted by Khaled, E. (2013) to predict Weight lifting performance on the basis of somatotypes, physical abilities and anthropometric variables. Study established a multiple regression model by taking all the three groups of variables i.e. somatotypes, physical abilities and

anthropometric variables. Present study is also of same nature but conducted on the basis of only Anaerobic power and Balance abilities. This study supports the above mentioned study. The main reason is that Anaerobic power may also be affected by somatotypes and physical abilities.

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Construction of Skill Test in Kabaddi

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Abstract

The objective of the study was to construct skill test in Kabaddi. For the purpose of the study, 100 male Kabaddi players were selected as the subjects for the study. Age of the subjects was ranging from 18 to 28 years. For the present study were test items selected Toe touch, Hand touch, Right grip strength, Left grip strength, Leg strength, Back strength, Foot work and Drag & Leg thrust. To construct skill test in kabaddi, factor analysis was used. Level of significance was set at .05 level. As per the norms, in the present study, sample adequacy was found mediocre. In the present study BTS (Bartlett's Test of Sphericity) was found significant ($p = .000$). This shows that correlation matrix is not an identity matrix. This means there are same relationships between the variables. Therefore factor analysis is appropriate. First component is named as "Kabaddi performance related strength." Second component is named as "Skill related performance of kabaddi players." Third component is named as "Fitness and skill related performance of kabaddi players." Forth component is ignored by the researcher since; this component has only one variable.

Keywords

Toe touch, Hand touch, Right grip strength etc.

1. INTRODUCTION

Kabaddi is defined as the team contact sport that originated in South Asia as well as Indo-Iranian society. The word "Kabaddi" is originally derived from a Hindi word which means "holding your breath". Kabaddi is the National game of Iran and Bangladesh and the State game of Punjab, Tamil Nadu, and Andhra Pradesh. The International version of Kabaddi consists of two teams of 7 members each that occupies opposite halves of the field of size 13m x 10m (for men) and 12m x 10m (for women). Each team has five supplementary players held in reserve. Kabaddi is played with two halves and a 5 minutes halftime break during which the side is exchanged by the teams. Kabaddi is a recreational sports activity that is often played in underwear. The two teams occupy the opposite halves of a field. The attacking side sends a "raider" who, on a single breath enters the opponent's half of the field with continuous chanting "Kabaddi-Kabaddi-Kabaddi" in order to ensure that player is not chanting by taking another breath. Raider has to touch any player on opposite side and return back to his court. The player who is touched is out. The opposite team will try to hold the raider and stop him from returning to his court. Now another team will get a chance to send a player into opponent's court (Bhargava, G.C., 1975).

1.1. Objectives of the Study

The objective of the study was to construct skill test in Kabaddi.

1.2. Selection of Subjects

For the purpose of the study, 100 male Kabaddi players were selected as the subjects for the study. Age of the subjects was ranging from 18 to 28 years.

1.3. Selected of Test Items

For the present study following variables/test items were used i.e. Toe touch, Hand touch, Right grip strength, Left grip strength, Leg strength, Back strength, Foot work and Drag & Leg thrust.

1.4. Criterion Measures

The selected criterion was assessed by using standard tests and procedures.

Sl. No	Variable/test item	Test	Unit of measurement
1	Toe touch Performance	Toe touch	In Seconds
2	Hand Touch Performance	Hand touch	In seconds
3	Right grip strength	Hand dynamometer	In Kg
4	Left grip strength	Hand dynamometer	In kg
5	Leg strength	leg&back dynamometer	In Kg
6	Back Strength	leg&back dynamometer	In Kg
7	Footwork performance	Footwork	In seconds
8	Drag & Leg thrust performance	Drag & Leg thrust	In Centimeters

2. ADMINISTRATION OF TESTS

2.1. Toe Touch Test

Purpose: To measure performance of toe touch.

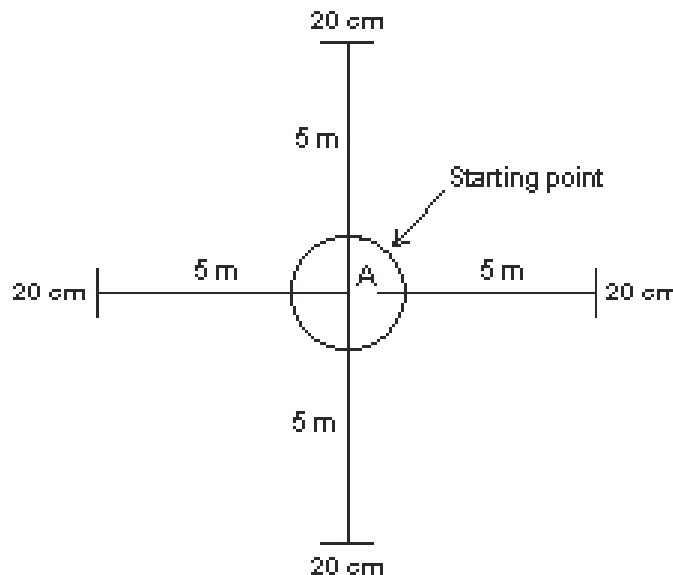


Figure 1: Test for Toe Touch

Procedure: The subject started in a parallel stance from starting point (A) facing forward. On command, subject moved towards his left direction by taking side steps, then touched 20 cm line by using the toe touch. Then restarted

back to starting point by taking side steps. The performed the same movement towards his right side then turn left side and performed the same action towards his left and right direction (after taking 900 turn towards his left side).

Score: The time taken by the subject to complete this moved was the score and was recovered in second.

2.2. Hand Touch Test

Purpose: To measure performance of hand touch.

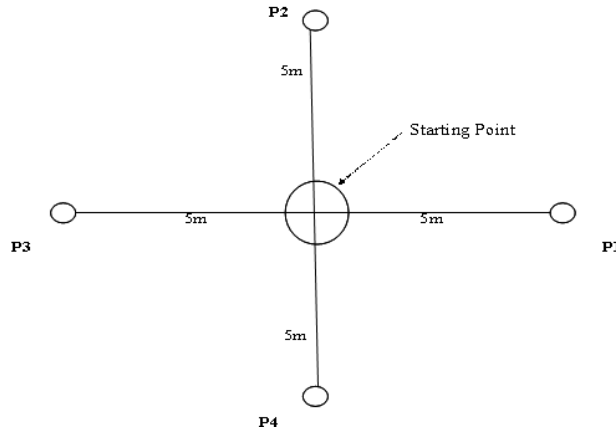


Figure 2: Hand Touch Test

Procedure: The subject started in parallel stance from starting point in facing a forward on command, subject moved towards his left direction by taking - steps then touched hand of boy by using the hand touch. Then restarted back to starting point by taking side steps. The performed the same movement towards his right side then turn left side and performed the same action towards his left and right direction (after taking 900 turn towards his left side).

Score: The time taken by the subject to complete this moved was the score and was recovered in second.

2.3. Footwork Test

Purpose: To measure performance of footwork.

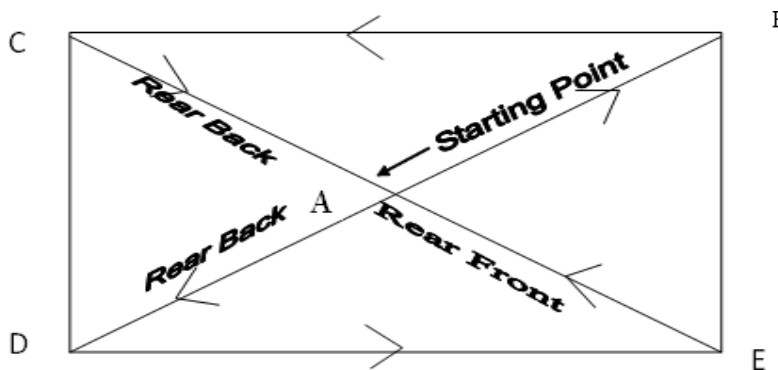


Figure 3: Footwork Test

Procedure: Subject - From starting point (A) on command, moved toward point B in Rear Front, (Rear foot followed front foot).

From point B moved towards point C in sideward action from point C moved towards point A by using rear back action from point A moved toward point D by using Rear back action from point D moved toward to point E by using side ward action from point E moved toward point A by using Rear front action.

Score: Time taken by the subject to complete the moved was the final score and was recorded in second.

2.4. Drag & Leg Thrust Test

Purpose: To Measure performance of Drag & Leg thrust.



Figure 4: Drag & Leg Thrust Test

Procedure: Subject start in parallel stance behind the starting line. On command subject dragged toward his left/ right side (depend on strong leg) as much as he could and his perform leg thrust by sitting on one leg and taking another leg straight.

Score: Distance between starting line and the point where he touched with Toe, was the final score and where recorded in c.m.

Statistical Technique for Analysis of Data:

1. To construct skill test in kabaddi, factor analysis was used.
2. Level of significance was set at .05 level.

3. FINDINGS

Table 1: Correlation Matrix Showing Correlation Coefficient and Significance Level of Kabaddi Players in all the Selected Variables

		Toe touch	Hand touch	Right grip strength	Left grip strength	Leg strength	Back strength	Foot work	Drag & Leg thrust
R	Toe touch	1.000	.464	-.176	.227	-.163	-.233	.014	.038
	Hand touch	.464	1.000	.081	.098	-.055	-.109	.106	.033
	Right grip strength	-.176	.081	1.000	.053	-.138	-.084	-.064	.159
	Left grip strength	.227	.098	.053	1.000	-.191	-.259	-.025	-.140
	Leg strength	-.163	-.055	-.138	-.191	1.000	.872	.059	-.197
	Back strength	-.233	-.109	-.084	-.259	.872	1.000	-.020	-.201
	Foot work	.014	.106	-.064	-.025	.059	-.020	1.000	.074
	Drag& Leg thrust	.038	.033	.159	-.140	-.197	-.201	.074	1.000
Sig. (1-tailed)	Toe touch		.000	.040	.012	.052	.010	.446	.354
	Hand touch	.000		.211	.165	.292	.141	.148	.373
	Right grip strength	.040	.211		.300	.085	.204	.263	.057
	Left grip strength	.012	.165	.300		.028	.005	.404	.083
	Leg strength	.052	.292	.085	.028		.000	.280	.025
	Back strength	.010	.141	.204	.005	.000		.422	.023
	Foot work	.446	.148	.263	.404	.280	.422		.231
	Drag & Leg thrust	.354	.373	.057	.083	.025	.023	.231	

a. Determinant = .121

Significant relationship was found between Toe-Touch and Hand-Touch ($r = .464, p = .000$); toe-touch and right grip strength ($r = -.176, p = .040$); toe-touch and left grip strength ($r = .227, p = .012$); toe-touch and back strength ($r = -.233, p = .010$); leg strength and left grip strength ($r = -.191, p = .028$); back strength and left grip strength ($r = -.259, p = .005$); back strength and leg strength ($r = .872, p = .000$), leg strength and drag & leg thrust ($r = -.197, p = .025$) & back strength and drag & leg thrust ($r = -.201, p = .023$) respectively.

Insignificant relationship was found between toe-touch and leg strength ($r = -.163, p = .052$); toe-touch and footwork ($r = .014, p = .446$); toe-touch and drag & leg thrust ($r = .038, p = .354$); hand touch and right grip strength ($r = .081, p = .211$); hand touch and left grip strength ($r = .098, p = .165$); hand touch and leg strength ($r = -.055, p = .292$); hand touch and back strength ($r = -.109, p = .141$); hand touch and footwork ($r = .106, p = .148$); hand touch and drag & leg thrust ($r = .033, p = .373$); right grip strength and left grip strength ($r = .053, p = .300$); right grip strength and leg strength ($r = -.138, p = .085$); right grip strength and back strength ($r = -.084, p = .204$); right grip strength and footwork ($r = -.064, p = .263$); right grip strength and drag & leg thrust ($r = .159, p = .057$); left grip strength and footwork ($r = -.025, p = .404$); left grip strength and drag & leg thrust ($r = -.140, p = .083$); leg strength and footwork ($r = .059, p = .280$); back strength and footwork ($r = -.020, p = .422$) and footwork and Drag & leg thrust ($r = .074, p = .231$) respectively.

The minimum determinant value of 0.00001 is required to avoid multicollinearity and singularity. In present condition determinant value of .121 is obtained. This value is greater than the required value of 0.0001. This proves that multicollinearity and singularity is not a problem of data.

Table 2: KMO Measure and BTS, Related to all the Selected Variables of Kabaddi Players

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.515
Bartlett's Test of Sphericity	Approx. Chi-Square	202.026
	df	28
	Sig.	.000

KMO (Kaiser-Meyer-Olkin) is a measure to test sampling adequacy. BTS (Bartlett's Test of Sphericity) is a measure to test the null hypothesis that the obtained matrix is an identity matrix. Value of KMO range from 0 to 1. Zero indicates that the sum of partial correlation indicating diffusion in the pattern of correlation in this condition it may be concluded that factor analysis is appropriate. Value near to 1 indicates that pattern of correlation are relating compact, in this condition factor analysis is appropriate. In this study KMO values was found .515, that is closer to 1 in comparison of 0. This shows that the developed factors are reliable. Already norms are available in case of KMO.

Value of KMO	Level of Sample Adequacy
Between 0.5 and 0.7	Mediocre
Between 0.7 and 0.8	Good
Between 0.8 and 0.9	Great
Above 0.9	Superb

As per the norms, in the present study, sample adequacy was found mediocre. In the present study BTS (Bartlett's Test of Sphericity) was found significant ($p = .000$). This shows that correlation matrix is not a identity matrix. This means there are same relationship between the variables. Therefore factor analysis is appropriate.

4. EXTRACTION

In extraction following results have been described.

- Eigenvalues before extraction, after extraction and after rotation.

- Initial communalities and communalities after extraction.
- Component matrix before rotation.

Scree Plot

Table 3: Total Variance Explained Related to all Components Including Amount of Variance Contributed by Each Component

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.212	27.644	27.644	2.212	27.644	27.644	2.015	25.189	25.189
2	1.441	18.018	45.662	1.441	18.018	45.662	1.533	19.166	44.354
3	1.174	14.681	60.343	1.174	14.681	60.343	1.166	14.580	58.935
4	1.025	12.813	73.156	1.025	12.813	73.156	1.138	14.221	73.156
5	.920	11.504	84.660						
6	.690	8.623	93.283						
7	.419	5.242	98.525						
8	.118	1.475	100.000						

Extraction Method: Principal Component Analysis.

Table 3 shows the amount of variance contributed by each component.

First part of Table 3 explains the initial eigenvalues of each component.

First component explains the highest i.e. 27.644%. Second component explain 18.018% and the total of first and second component was 45.662%. Third component explains 14.681% and the total of first, second and third component was 60.343%. Fourth component explains 12.813% and the total of first, second, third and fourth component was 73.156%. Fifth component explains 11.504% and the total of first, second, third, fourth and fifth component was 84.660%. Sixth component explains 8.623% and the total of first, second, third, fourth, fifth and sixth component was 93.283%. Seventh component explains 5.242% and the total of first, second, third, fourth, fifth, sixth and seventh component was 98.525%. Eighth component explains 1.475% and the total of first, second, third, fourth, fifth, sixth, seventh and eighth component was 100.00%.

Second part of Table 4 explains the eigenvalues after extraction. In this, component having eigenvalues less than one are removed.

Third part of the Table 4 explains the eigenvalues after rotation. In this percentage of variance is equalized.

Table 4: Initial and After Extraction Communalities of all Selected Variables

	Initial	Extraction
Toe touch	1.000	.719
Hand touch	1.000	.798
Right grip strength	1.000	.852
Left grip strength	1.000	.537
Leg strength	1.000	.899
Back strength	1.000	.916
Footwork	1.000	.492
Drag & Leg thrust	1.000	.639

Extraction Method: Principal Component Analysis.

Table 4 shows the communalities (initial and after extraction).

In case of toe touch, 0.71 percent of variance associated with this variable is common or shared.

In case of hand touch, 0.79 percent of variance associated with this variable is common or shared.
 In case of right grip strength, 0.85 percent of variance associated with this variable is common or shared.
 In case of left grip strength, 0.53 percent of variance associated with this variable is common or shared.
 In case of leg strength, 0.89 percent of variance associated with this variable is common or shared.
 In case of back strength, 0.91 percent of variance associated with this variable is common or shared.
 In case of footwork, 0.49 percent of variance associated with this variable is common or shared.
 In case of drag & leg thrust, 0.63 percent of variance associated with this variable is common or shared.

Table 5: Component Matrix Before Rotation

	Component			
	1	2	3	4
Toe touch		.686		
Hand touch		.620		
Right grip strength				.772
Left grip strength			-.501	
Leg strength	.862			
Back strength	.898			
Footwork			.537	
Drag and Leg thrust			.654	
Extraction Method: Principal Component Analysis.				
a. 4 components extracted:				

Table 5 shows that four component are extracted.
 In first component leg strength and back strength are selected
 In second component toe-touch and hand touch are selected
 In third component left grip strength, footwork and drag & leg thrust are selected
 In forth component right grip strength is selected.

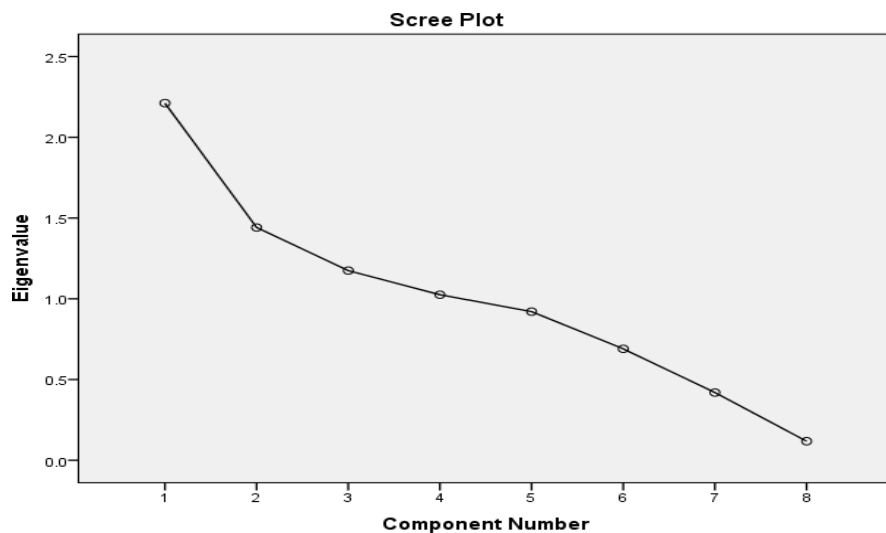


Figure 5: Scree Plot Showing the Inflexion on the Curve

Figure 5 of scree plot shows the inflexion of curve related to each component by the eigenvalues, 4 factors are retained.

It is very difficult to retain the component by the help of scree plot. But the scree plot suggests that two or three factors may be retained.

4.1. Rotation

In rotation result related to rotated component matrix has been described.

Table 6: Rotated Component Matrix Related to Retained Components (Factors)

	Component			
	1	2	3	4
Toe touch		.792		
Hand touch		.871		
Right grip strength				.921
Left grip strength			-.591	
Leg strength	.944			
Back strength	.950			
Footwork			.599	
Drag and Leg thrust			.668	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 6 shows the rotated component matrix. This matrix retains the same component as retained by un-rotated component matrix.

In first component leg strength and back strength are selected.

In second component toe-touch and hand touch are selected.

In third component left grip strength, footwork and drag & leg thrust are selected.

In fourth component right grip strength is selected.

First component is named as "Kabaddi performance related strength."

Second component is named as "Skill related performance of kabaddi players."

Third component is named as "Fitness and skill related performance of kabaddi players."

Fourth component is ignored by the researcher since; this component has only one variable.

5. OUTCOMES OF THE STUDY

By the help of three components (factors) specific performance of kabaddi players may be measured. Details are given below:

Sl. No of Factor/Component	Objective	Test Items
One	To measure Kabaddi performance related strength	Leg strength Back strength
Two	To measure Skill related performance of kabaddi players	Toe-touch Hand touch
Three	To measure Fitness and skill related performance of kabaddi players	Left grip strength Footwork Drag & leg thrust

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Prediction of Right Winger Performance in Handball on the Basis of Selected Co-ordinative Abilities

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Abstract

The objective of the study was to establish regression equation for predicting Dependent Variable (Right Winger Performance in Handball) on the basis of Independent Variables (selected Coordinative Abilities). A total of 10 University level male Handball Players who played Right Winger position were selected from different Universities in India. Five selected coordinative abilities were i.e. 1. Reaction Ability (RA); 2.Orientation Ability (OA); 3.Differentiation Ability (DA); 4. Balance Ability (BA); 5. Rhythm Ability (RYA).For predicting Dependent Variable (Right Winger Performance in Handball) on the basis of Independent Variables (Selected Coordinative abilities), Multiple Regression Analysis was used and one regression model was established. Established regression model is: Right Wingers performance = 5.066 + 1.454 X Differentiation Ability.

Keywords

Coordinative Abilities

1. INTRODUCTION

According to the nature of handball game which requires speed, agility, coordination etc as fitness components to perform well, reaction time plays a vital role depending upon the reflexes of the player against a stimulus. Reaction time literally means to respond against a particular stimulus as soon as possible in a shorter duration of time. (Kamlesh, M.L., 2011). Coordinative abilities comprises of both i. e. motor fitness (enable one to increase his/her ability to perfect his/her skill) & motor ability (ability of proficiency in different sports). Sportsperson can use his or her psychobiological capacities up to maximum extent only in the presence of adequately developed coordinative abilities. Coordinative abilities are improved through physical exercise especially by general & specific exercises. (Kumar, R., 2011)

According to Blume (1978) German sports scientist, the concept of agility can be changed by the concept of coordinative abilities and these coordinative abilities influences the performance in different games and sports. (Uppal, A.K. 2001)

2. OBJECTIVE OF THE STUDY

To establish regression equation for predicting Dependent Variable (Right Winger Performance in Handball) on the basis of Independent Variables (selected Coordinative Abilities).

3. METHODOLOGY

Subjects: A total of 10 University level male Handball Players who played Right Winger position were selected from different Universities in India.

Variables: Keeping in the mind about specific purpose of the study, the following Coordinative abilities were selected:

1. Reaction Ability (RA);
2. Orientation Ability (OA);
3. Differentiation Ability (DA);
4. Balance Ability (BA);
5. Rhythm Ability (RYA).

4. STATISTICAL TECHNIQUE USED

For predicting Dependent Variable (Right Winger Performance in Handball) on the basis of Independent Variables (Selected Coordinative abilities), Multiple Regression Analysis was used.

5. FINDINGS OF THE STUDY

5.1. Findings and Results of the Study Related to Right Wingers

5.1.1. Testing assumptions to apply multiple linear regression model

All the assumptions are based on residuals. Number of residuals are same as number of subjects. It is the different between two values i.e., one is observed value and another is fitted value of regression line.

In this study there are ten residual points.

There are four assumptions which should be fulfilled before applying multiple linear regression model.

1. There should be no outliers of the residuals.
2. Data points should be independent in nature.
3. The residual's distribution should have constant variance.
4. Residual's distribution should be normal having mean = 0 and standard deviation = 1.

5.2. Assumption I

The checking of outliers of residuals.

Table 1: Residuals Statistics Related to Right Wingers

		Value (Predicted)	Residual	Value (Standardized Predicted)	Residual (Standardized)
Measures	Minimum value	18.15	-2.15	-1.14	-1.24
	Maximum value	26.88	2.39	1.84	1.37
	Mean value	21.50	.00	.00	.00
	Value of SD	2.91	1.63	1.00	.94
Variable (Dependent): Right Wingers Performance					

Outliers are checked by standardised residuals. This value should not exceed ± 3 . If the value exceeds that means there are outliers.

Table 1 shows the residuals statistics related to Right Wingers. In this table the minimum value of standardised residual is -1.240 and on the other hand maximum value of standardised residual is 1.376. This value lies in the expected range of ± 3 .

This shows that the first assumption related to outliers of residuals has been fulfilled.

5.3. Assumption II

The checking of independence of residuals

Table 2: Durbin-Watson Value Related to Right Wingers

Durbin-Watson Value	2.179
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The Durbin-Watson estimate or value is used to check the independence of residuals. The value of Durbin-Watson test ranges from 0 to 4. The interpretations are, if the value is near to 0 that shows strong positive correlation and on the other hand the value is near to 4, indicates strong negative correlation.

Here Table 2 shows the Durbin-Watson value of 2.179. This value is near to 2 and away from 0 and 4. This shows that the assumption related to independence of residual is fulfilled i.e., neither strong positive correlations are found and nor strong negative correlations are found.

This shows that second assumption of independence of residuals has been fulfilled.

5.4. Assumption III

The checking of assumption related to constant variance

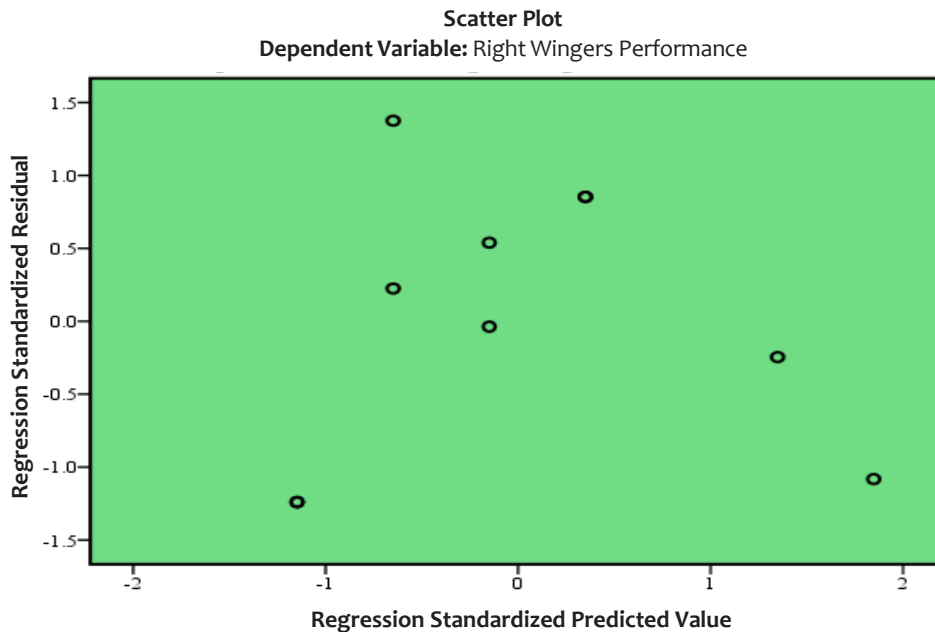


Figure 1: Figure Shows Scatter Plot of Standardized Residual Versus Standardized Predicted Value

In relation to checking of the assumption of constant variance, there should not be any clear pattern.

Figure 1 of scatter plot shows that there is no clear pattern. On the basis of that it may be concluded that the variance is constant and third assumption of constant variance is fulfilled.

5.5. Assumption IV

The checking of assumption related to normality of residuals distribution

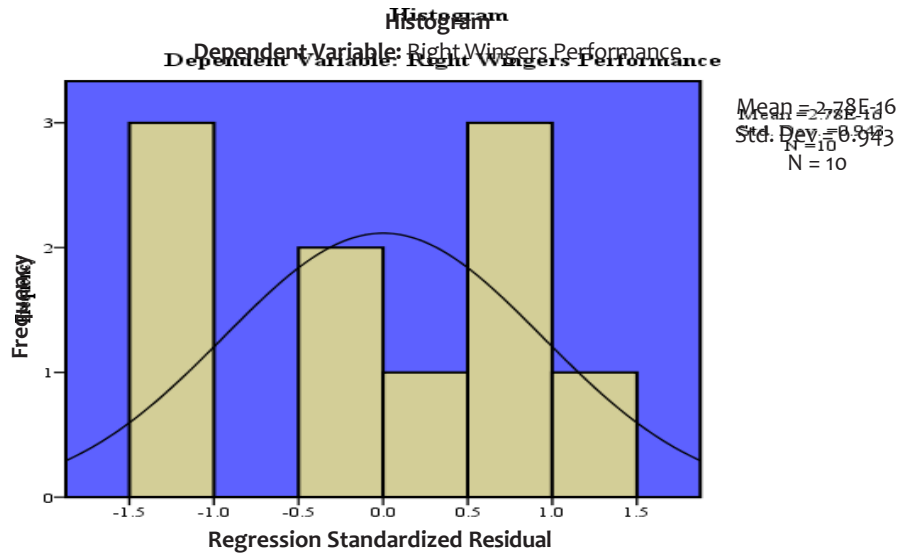


Figure 2: Histogram with Normality Plots in Relation to Residuals Distribution of Right Wingers

Figure 2 shows the histogram with normality plots of residuals distribution pertaining to Right Wingers along with mean and standard deviation.

Figure shows that distribution of residuals fulfilled assumptions of the normality.

Figure 2 also shows that the mean of residuals distribution is near to 1 and standard deviation is near to 0.

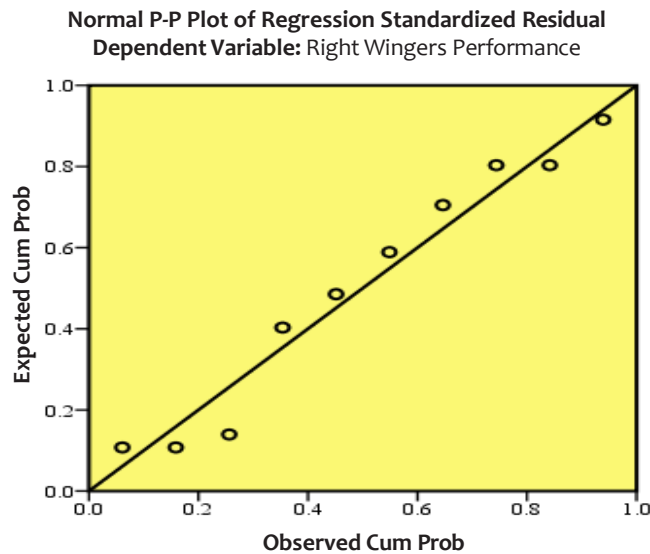


Figure 3: Plot of Normal Probability in Relation to Residuals Distribution of Right Wingers

Figure 3 shows Q-Q Plots to compare the quantiles of a data distribution with the quantiles of standardised theoretical distribution in relation to residuals distribution of Right Wingers.

For normal distributions, points should be along with the line. In figure 3 all the points are more or less near to standardised line.

From Figure 2 and 3 it may be concluded that assumption related to the checking of normality of residuals distribution has been fulfilled.

Since all the assumptions have been fulfilled, multiple regression analysis was applied to estimate Right Wingers performance on the basis of selected coordinative abilities.

Multiple regression analysis (Estimation of Right Wingers performance on the basis of selected coordinative abilities)

Table 3: Model Summary Related to Estimation of Right Wingers Performance on the Basis of Selected Coordinative Abilities

Established Model	Value of R	Value of R Square	Value of Adjusted R Square	Value of Standard Error of the Estimate
1	.872a	.760	.730	1.73744
Constant: (Predictors): Differentiation Ability				
Variable: (Dependent): Right Wingers Performance				

Table 3 reveals that only one model is established to estimate Right Wingers performance on the basis of selected coordinative abilities. This model is established on the basis of only one independent variable (differentiation ability). In this table R of 0.872 is the value of Pearson moment correlation (between Right wingers performance and differentiation ability).

R Square of 0.760 shows that 76% of Right Wingers performance is explained by the differentiation ability. Value of Adjusted R Square is ignored since only one independent variable is included.

Table 4: ANOVA Table Related to Estimation of Right Wingers Performance on the Basis of Selected Coordinative Abilities

Established Model	SS (Sum of Squares)	df (Degree of Freedom)	MS (Mean Square)	F-value	Significance Value	
1	Reg. (Regression)	76.350	1	76.350	25.292	.001 ^a
	Res. (Residual)	24.150	8	3.019		
	Total	100.500	9			
Constant: (Predictors): Differentiation Ability						
Variable (Dependent): Right Wingers Performance						

The analysis of variance i.e., ANOVA table (table 4) tells about usefulness of linear regression model for estimating Right Wingers performance on the basis of differentiation ability.

F-value of 25.292 is significant ($p < 0.05$). This shows that established model is useful and may be used for estimating Right Wingers performance on the basis of differentiation ability.

Table 5: Coefficients Related to Estimation of Right Wingers Performance on the Basis of Selected Coordinative Abilities

Established Model	Coefficients (Unstandardized)		Coefficients (Standardized)	Value of t	Sig.	Confidence Interval (95%) for B		Statistics for Collinearity	
	B	Standard Error	Beta			Value of Lower Bound	Value of Upper Bound	Tolerance value	VIF value
1	Value of Constant	5.06	3.31	1.52	.16	-2.57	12.70		
	Differentia-tion ability	1.45	.28	.87	5.02	.001	.78	2.12	1.00
Variable (Dependent): Right Wingers Performance									

Table 5 tells the quantification about the relationship between Right Wingers performance and differentiation ability. The constant of 5.066 has no practical meaning. This is the value of Right Wingers performance, when the differentiation ability of Right Wingers is 0.

This shows that with the increase of every one unit of differentiation ability (On an average), the playing ability of Right Wingers increases by 1.454 units.

Table 6: Excluded Variables Related to Estimation of Right Wingers Performance on the Basis of Selected Coordinative Abilities

Established Model	Value of Beta	in	Value of t	Sig.	Value of Partial Correlation	Collinearity Statistics		
						Tolerance value	VIF value	Minimum Tolerance Value
1	Orientation ability	-.31 ^a	-.65	.535	-.23	.13	7.30	.137
	Reaction ability	-.10 ^a	-.29	.777	-.11	.26	3.81	.26
	Balance ability	-.07 ^a	-.17	.863	-.06	.19	5.25	.19
	Rhythm ability	-.30 ^a	-.86	.418	-.30	.24	4.04	.247
a. Predictors in the Model: (Constant), Differentiation Ability								
b. Dependent Variable: Right Wingers Performance								

Table 6 shows the excluded independent variables (Orientation ability, Reaction ability, Balance ability and Rhythm ability), these variables are excluded, since stepwise method was used.

Model to predict performance of Right Wingers:

Right Wingers performance = 5.066 + 1.454 X Differentiation Ability
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5. DISCUSSION

Kapri, B. C., & Choudhary, R. (2010) conducted a study to compare coordinative abilities of different playing positions of Indian football players. In the present study, selected coordinative abilities i.e. orientation ability, differentiation ability, reaction ability, balance ability and rhythm ability were selected as variables. On the basis of result, significant difference was found among different playing positions in relation to reaction ability (F=8.27); orientation ability (F=14.73); differentiation ability (F=12.52); balance ability (F=18.37) and rhythm ability (F=26.08) respectively. The study provided a base to estimate handball performance at different playing positions on the basis of coordinative abilities since different coordinative abilities are required at different playing positions. Mishra, M. K., & Choudhary, R., (2015) conducted a study to establish regression model for estimating raiders performance on the basis of selected coordinative abilities in kabaddi. In the present study, selected coordinative abilities (orientation ability, differentiation ability, reaction ability, balance ability and rhythm ability) were selected as variables. Results showed that three regression models were established. The first model is: raiders performance = 27.93 - 7.32 * rhythmic ability; second model is: raiders performance = 37.21 - 4.57* rhythmic ability - 1.40 * balance ability; and third model is: raiders performance = 31.31 - 4.08*rhythmic ability - 1.10*balance ability + .22 * differentiation ability. Raiders also belong to specific playing position in kabaddi. The present study also supports the above mentioned study.

Since there is a close association of coordinative abilities with the handball performance, the regression equation established in this study may be generalized to estimate Right Wingers performance in handball on the basis of selected coordinative abilities.

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Co-ordinative Abilities of Table-Tennis in Different Age Groups: A Comparative Study

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Abstract

The purpose of the study was to characterize elite Gujarat table-tennis players to standard human performance measures by their selected co-ordinative abilities. The purpose of the study was to compare sub junior, junior and senior players of table-tennis by their selected co-ordinative abilities. The subjects were tested on selected co-ordinative abilities i.e. Reaction ability, Orientation ability, Differentiation ability, Balance ability and Rhythm ability. To characterize elite state table-tennis players to their standard human performance measures by selected co-ordinative abilities, mean and standard deviation were used. To compare the selected co-ordinative abilities among sportsman belonging to three levels (Sub-Juniors, Juniors and Senior), one way analysis of variance (ANOVA) and post hoc (Least significant difference) test was used and the levels of significance was set at 0.05 levels. The analysis of variance showed that there was significant difference between sub juniors, juniors and seniors in relation to Reaction ability, Orientation ability, Balance ability and Rhythmic ability as "F" Values were found to be significant (99.65, 9.60, 9.39 and 176.44) where these were required to be 3.92 at 0.05 level of confidence. In relation to differentiation ability there was not any significant difference between sub juniors, juniors and seniors as 'F' value was not found to be significant (0.021), where this was required to be 3.92 at 0.05 level of confidence. After applying the post-hoc (least significant difference) test it was observed that in relation to Reaction ability mean differences of sub juniors and juniors; sub juniors and seniors; juniors and seniors was found to be significant at 0.05 level of significance. In relation to orientation ability mean differences of sub juniors and junior; sub juniors and seniors; juniors and seniors was found to be significant at 0.05 level of significance. In relation to Balance ability mean differences of sub juniors and juniors; sub juniors and seniors; juniors and seniors was found to be significant at 0.05 level of significance. In relation to Rhythmic ability mean differences of sub juniors and juniors; sub juniors and seniors; was found to be significant at 0.05 level of significance. Mean difference of juniors and seniors was found to be insignificant.

1. OBJECTIVE OF STUDY

The purpose of the study was to compare the coordinative abilities of table-tennis players among different age groups.

2. METHODOLOGY

2.1. Subjects

For the purpose of this study 120 table-tennis players of school level girls from states of who participated in inter variety competitions, like state and national Championship and inter-university level in table-tennis. A total of 120 subjects were selected 40 from each level i.e. Sub-Junior, Junior and Senior:

1. For Sub-Juniors, the age of the subjects was 14 years and below (last day of the year) and upto Index 220.

2. For Juniors, the age of the subjects was 18 years and below (last day of the year) and upto Index 250.

3. For seniors the age of the subjects was above 18 years.

Index formula used in the study was:

Index point = age of years + Height in centimetres + weight in Kg.

2.2. Variables

Keeping the feasibility criterion in mind, especially in the case of availability of instruments, the following coordinative abilities were selected:

- | | | |
|-------------------------|-----------------------------|----------------------|
| (1) Orientation Ability | (2) Differentiation Ability | (3) Reaction Ability |
| (4) Balance Ability | (5) Rhythm Ability. | |

2.3. Administration of Tests

The necessary data was collected by administering co-ordinative abilities tests as suggested by Peter Hirtz (1985).

2.4. Statistical Analysis

To compare the coordinative abilities of taekwondo among different age categories, analysis of Variance (ANOVA) was employed at .05 level of significance.

3. FINDINGS AND CONCLUSIONS

To observe the difference between table-tennis players of all age categories on their selected coordinative abilities, the analysis of variance was adopted and data pertaining to these has been presented in Tables 1 to 9.

To observe the difference between three groups (Sub Juniors, Juniors and Seniors) of table-tennis Players on their Reaction Ability, the analysis of variance was adopted and data pertaining to them have been presented in Table 1.

Table 1: Analysis of Variance of the Means of Reaction Ability Among Players of Three Different Levels of Participation

Source of Variation	Df	Sum of Square	Mean Square	F-value
With in Group	2	28196.35	14098.17	99.65*
Between Groups	117	16552.98	141.47	

*Significant at 0.05 level; $F_{.05}(2, 117) = 3.92$

It is evident from Table 1 that significant difference was found among the table-tennis players of three different levels as the F-value of 99.65 is higher than the tabulated value of 3.92 with 2,117 df at .05 level of significance.

Since the one way analysis of variance was found significant in relation to Reaction Ability, the least significant difference (LSD) test was applied to find out which of the differences of the means amongst the different groups (Sub Juniors, Juniors and Seniors) were statistically significant (Table 2).

Table 2: Least Significant Difference Post-HOC Test for Means of the Sub-Juniors, Juniors and Seniors in Relation to Reaction Ability

Groups (Means)			M.D.	C.D.
Sub Juniors	Juniors	Seniors		
186:1	164.4		21.7*	5.26
186:1		155.42	30.68*	5.26
	164.4	155.42	8.98*	5.26

*Significant at .05 level; M.D. = Mean Difference; C.D. = Critical difference

It's evident from table 2 that mean differences of Sub Juniors and Juniors, Sub Juniors and Seniors, Juniors and Seniors was found to be significant at 0.05 level of significance in relation to Reaction ability.

To observe the difference between three groups (Sub Junior, Junior and Seniors) of table-tennis players on their Orientation Ability the analysis of variance was adopted and data pertaining to them have been presented in Table 3.

Table 3: Analysis of Variance of the Means of Orientation Ability Among Players of Three Different Levels of Participations

Source of Variation	df	Sum of Squares	Means squares	F-value
Within group	2	26.53	13.26	9.60*
Between Groups	117	162.60	1.38	

*Significant at 0.05 levels; F .05 (2, 117) = 3.07

It is evident from table 3 that significant difference was found among the table-tennis players of three different levels as the F-value of 9.60 is higher than the tabulated value of 3.07 with 2,117 df at .05 level of significance .Since the one way analysis of variance was found significant in relation to Orientation ability, the least significant (LSD) test was applied to find out which of the difference of the means amongst the different groups (Sub Junior, Juniors and Seniors) were statistically significant (Table 4).

Table 4: Least Significant Difference Post-HOC Test for Means of the Sub Juniors, Juniors and Seniors in Relation to Orientation Ability

Groups			M.D.	C.D.
Sub Juniors	Juniors	Seniors		
7.27	8.54		1.27 *	.52
7.27		10.12	2.85 *	.52
	8.54	10.12	1.58*	.52

* Significant at .05 level; M.D. = Mean Difference; C.D. = Critical Difference

It is evident from Table 4 that mean differences of sub juniors and juniors; sub juniors and seniors; juniors and seniors was found to be significant at 0.05 levels of significance in relation to Orientation ability.

Seniors) of table-tennis players on their Differentiation Ability, the analysis of variance was adopted and data pertaining to them have been presented in Table 5.

Table 5: Analysis of Variance of the Means of Differentiation Ability Among Players of Three Different Levels OF Participation

Source of Variation	df	Sum of Squares	Means Squares	F-value
With in group	2	0.32	0.16	0.021
Between Groups	117	886.4	7.57	

Insignificant at .05 level; F .05 (2, 117) = 3.07

To observe the difference between three groups (Sub Juniors, Juniors and Seniors) of table-tennis players on their Differentiation Ability, the analysis of

It is evident from table 5 that insignificant difference was found among the table-tennis players of three different levels as the F-value of 0.021 is lower than the tabulated value of 3.07 with 2,117 df at .05 level of significance. To observe the difference between three groups (Sub Juniors, Juniors and Seniors) of table-tennis players on their Balance Ability, the analysis of variance was adopted and data pertaining to them have been presented in Table 6.

Table 6: Analysis of Variance of the Means of Balance Ability Among Players of Three Different Levels of Participations

Source of Variation	df	Sum of Squares	Means Squares	F-value
With in group	2	25.75	12.87	9.39*
Between Groups	117	160.75	1.37	

* Significant at .05 level; F .05 (2, 117) = 3.07

It is evident from table 6 that significant difference was found among the table-tennis players of three different levels as the F-value of 9.39 is higher than the tabulated value of 3.07 with 2,117 df at .05 level of significance.

Since the one way analysis of variance was found significant in relation to Balance Ability, the least significant (LSD) test was applied to find out which of the different of the means amongst the different groups (Sub juniors, Juniors and Seniors) were statistically significant (Table 7).

Table 7: Least Significant Difference Post-HOC Test for Means of the Sub Juniors, Juniors and Seniors in Relation to Balance Ability

Groups			M.D.	C.D.
Sub Juniors	Juniors	Seniors		
10.075	8.635		1.44*	0.51
10.075		7.24	2.835*	0.51
	8.635	7.24	1.395*	0.51

*Significant at .05 level; M.D. = Mean Difference; C.D. = Critical Difference

It is evident from Table 7 that mean differences of Sub Juniors and Juniors; Sub Juniors and Seniors; Juniors and Seniors was found to be significant at 0.05 levels of significance in relation to Balance ability.

To observe the difference between three groups (Sub Junior, Junior and Seniors) of table-tennis players on their Rhythmic Ability the analysis of variance was adopted and data pertaining to them have been presented in Table 8.

Table 8: Analysis of Variance of the Means of Rhythmic Ability Among Players of Three Different Levels of Participations

Source of Variation	df	Sum of Squares	Means Squares	F-value
Within group	2	31.77	15.88	176.44*
Between Groups	117	11.08	0.09	

*Significant at 0.05 level; F .05 (2, 117) = 3.07

It is evident from table 8 that significant difference was found among the table-tennis players of three different levels as the F-value of 176.44 is higher than the tabulated value of 3.07 with 2,117 df at .05 level of significance.

Since the one way analysis of variance was found significant in relation to Rhythmic Ability, the least significant (LSD) test was applied to find out which of the difference of the means amongst the different groups (Sub Juniors, Juniors and Seniors) were statistically significant (Table 9).

Table 9: Least Significant Difference Post-HOC Test for Means of the Sub Junior, Junior and Senior in Relation to Rhythmic Ability

Groups			M.D.	C.D.
Sub Juniors	Juniors	Seniors		
1.64	1.05		0.59 *	0.13
1.64		1.005	0.635*	0.13
	1.05	1.005	0.045	0.13

*Significant at .05 level; M.D. = Mean Difference; C.D. = Critical Difference

It is evident from Table 9 that mean differences of Sub Juniors and juniors, Sub Juniors and Seniors; was found to be significant at 0.05 level of significance in relation to Rhythmic ability.

On the other hand significant difference was not found among juniors and seniors in relation to Rhythmic ability.

4. DISCUSSIONS

Significant different was found between the table-tennis Players of three different levers in relation to Reaction Ability at .05 level, Orientation ability, Balance Ability and Rhythmic Ability. On the their hand insignificant different was found between the table-tennis players of three different levels in the relation to Differentiation ability at .05 level. In all the four Co-ordinative i.e. Reaction ability, Orientation ability, Balance ability and Rhythmic ability, the sequence of performance in all the four co-ordinative abilities has Seniors > Juniors > Sub Juniors.

This might be due the reason that senior table-tennis Players development Co-ordinative abilities by the long duration of participation and by the help of general and specific exercises, Additional means for improving motor since organs, variation of exercises, variation of movement execution, variation in external conditions, combination of movement, change in information uptake, practice against time and due to practice a under fatigue.

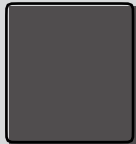
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Relationship of Will to Win and Aggression Among West Zone Inter University Basketball Players

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Abstract

Sports and games are competitive in nature and are meant for a specific age group. The participation is only enjoyed by the talented and gifted youngsters. Basketball is a sport requiring high level of fitness. Basketball players need a good combination of physical, physiological as well as psychological fitness in order to succeed. Of all the factors affecting sports performance, it seems that the most important one is the ability of the athlete to identify and assume the appropriate feeling required to perform at his best when he needs to do. Due to the fact that athletic competition is generally the position in which rewards are distributed unevenly among the participants or contestants. This means that reward the winner of the competition is different from reward the winner or loser, for example, rewarding the winner of the championship with the gold medal and rewarding the loser with the silver medal, and the followed receives a bronze medal, while the rest of the contestants do not get any medals. The main thrust of the modern sports is on winning, not just participating and playing. Physical Health and fitness or joy and fun are no longer the purpose or even the target. The dismissal performance of Indian players and athletes in international events has been largely attributed to the lack of will to win. It is the factor that makes great competitors. Will To Win is the intensity to desire to defeat an opponent or to excel some performance standard in a given sports. This construct is similar to need- achievement and internal locus of control. It is also related partly to competition and some parts of aggression. The purpose of the study is to find the relationship of will to win and aggression of interuniversity basketball players of west zone inters university Basketball Tournament. For this, 60 players were randomly selected that represented the west zone tournament. The data for the research work was collected from the players with the permission of the authority/manager and coach of the particular university. The questionnaires were filled by the players at the hostel that was allotted to them. The instructions were given for filling the questionnaire well in advance. All the quarries were cleared if asked by any subject. The questionnaire was checked by the researcher after they were duly filled so that no question was left unanswered. Then the result was analyzed. The data collected was then analyzed in the Microsoft excel with the test of Pearson Product Moment Correlation and the error of significance was 0.05. The significant result was found between the will to win and aggression of interuniversity basketball players.

Keywords

WBCs, Blood Glucose and Weight Training

1. INTRODUCTION

There is a range of competitive activities that allow aggressive significantly may lead to harm the opponent, such as boxing, wrestling, judo, karate, and other activities which are characterized binds and strikes, which may be harmful and, in order to achieve victory over Rival. The sport one of the most competitive areas that look like a human phenomenon of aggression and clear, there are many manifestations of aggression and the threat of ridicule begin and end the physical abuse which may lead to injury or discount rival, sabotage and destruction of property. Due to the fact that athletic competition is generally the position in which rewards are distributed unevenly among the participants or contestants. This means that reward the winner of the competition is different from reward the winner or loser, for example, rewarding the winner of the championship with the gold medal and rewarding the loser with the silver medal, and the followed receives a bronze medal, while the rest of the contestants do not get any medals. So it may be the conditions of competition with all the sports content of the attempt by the athletes to show their abilities, skills and backgrounds to try to win they may acquire a factor in the emergence of aggression in its various forms.¹

Will to win is defined as the extent to which a person desires to reach some standard of excellence or defeat of opponent. Will or desire is an attitude that makes skillful players are in competent through will be attitude a man can win every battle. Will to win can be defined though wining edge means need to strive for excellence not perfection. Will to Win enable wider participation in sport by developing and managing local sports facilities. We are committed to providing a positive, accessible sporting environment and the opportunity for all to play sport to a higher level. Operating from five main public parks, we work closely with local communities, local authorities, schools and the general public to make sport more accessible and available to all.²

“Aggression involves the intention to hurt or emerge superior to others, does not necessarily involve physical injury (violence) and may or may not be regarded as being underpinned by different kinds of motives” . Aggression can be seen in sport as a result of factors including frustration, personality and the influence of role models. Some sports are more associated with violence and anger than others. The media tends to focus on violent incidents in sports giving the impression that sport promotes aggression. Researchers in the area of sport and aggression assumed the data would suggest that people who play sports would be less aggressive than people who do not play sport.³

2. OBJECTIVES OF THE STUDY

The main objective of the study was to find the relationship of will to win and aggression of basketball players:

1. To find out the will to win of basket ballplayers.
2. To find out the aggression of basketball players.

2.1. Hypothesis

The research scholar’s own understanding, it was hypothesized that there might be significant result between will to win and aggression of basketball players.

¹Ibrahim A. and associates (2010) “Sport Aggression and its Relationship with Ranking of the Junior Egyptian Wrestlers”. *World Journal of Sport Sciences*. 3: 252-257.

²Flaming and associates (2010). “Ethical Decision-Making and Will to Win Differences Between Philippines and United States Students”. *Ethics Behaviour*. 20(1): 65-79.

³Crowell-Davis and associates (2002). “Position Statements Aggression and Violence in Sport: ANISSP Position Stand”. p. 86.

3. METHODOLOGY

3.1. Selection of Subjects

Simple random-sampling technique was used for determining the sample for the present study. The samples were consist of 60 Inter University Basketball players participating in West Zone Basketball Inter University.

3.2. Selection of Variables

On the basis of the literature reviewed and in consultation with the experts, the variables will to win and aggression was selected for the present study.

3.3. Inclusion Criteria

- The subjects from basketball Inter-University tournaments were included.
- Only will to win and Aggression variable were included.
- The students who were filled up the consent form were included.

3.4. Sample

Simple random-sampling technique was determined to select the sample for the present study.

3.5. Variables

Sr. No	Name of questionnaire	Author
1	Will to Win	Dr. Anand Kumar & P.C. Shukla
2	Aggression	Dr. Anand Kumar

3.6. Experimental Design

A check-list was constructed and identify the relationship between would to win and aggression among basketball players. On the basis of the survey, the researcher made a list of total number of 60 subjects. Duly filled written consent from the heads of the institution and also from the students was collected. Further, a standard Questionnaire used for the measurement of test that was administered on the selected 60 students. The results were kept secret and were not disclosed without prior permission from the concerned subjects. The test was administered on the working days either in the morning or in the evening. The students were given proper instruction about the procedure of the tests to be administered. Any doubt was immediately clarified. The standard Questionnaire of Aggression constructed by Dr. Anand Kumar, was used to know the aggression of West Zone Inter University Basketball Players that contains 29 items. These Questionnaires was distributed among the West Zone Inter University Basketball Players and the data was collected and analyzed. These types of Questionnaires are associated with particular validity and reliability which is reliable for the study

4. ANALYSIS AND INTERPRETATION OF DATA

The statistical analysis of data pertaining to the study were collected on 60 male basketball players of west zone inter university basketball tournament. Researcher selected two psychological variables Will to win and Aggression. The standard questionnaire was used for the study Will to Win was constructed by Dr. Anand Kumar & P.C. Shukla and Aggression questionnaire was constructed by Dr. Anand Kumar. Pearson Product Moment Correlation was computed.

5. FINDINGS

To establish the relationship of Will to Win and Aggression among the players of West Zone Inter university Male Basketball players Product moment Correlation was used. The coefficients of correlation between variables have been shown in the tables

Table 1: Shows the Matrix Table of Will to Win and Aggression Variable

	Will to Win	Aggression
Will to Win	1.000	
Aggression	0.273	1.000

Table 2: Showing the Relationship of Will to Win and Aggression of Interuniversity Basketball Players

Variables Correlated	Co-efficient Correlation
Will to Win Aggression	0.273

df (58) = 0.254

Table 2 shows the correlation of will to win and aggression of west zone inter university basketball players. The co-efficient of correlation found was 0.273 which is greater than the tabulated value. Hence, there was positive correlation found in will to win and aggression.

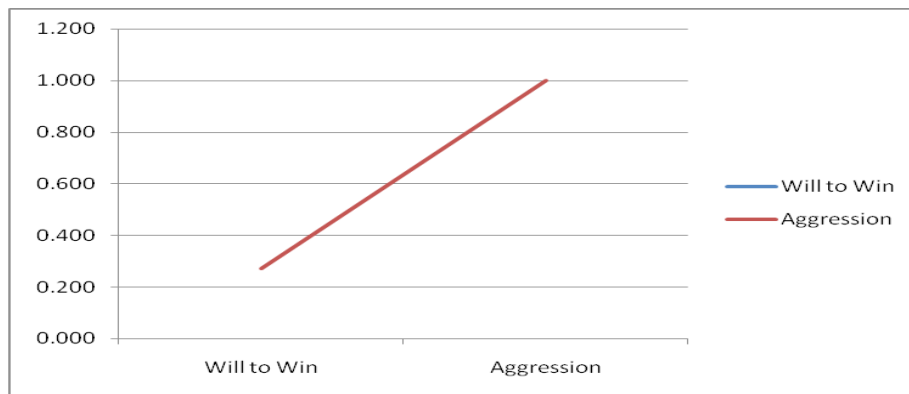


Figure 1: Showing the Graphical Representation of will to Win and Aggress

Table 3: Showing the Matrix Table of Will to Win and Aggression

	Will to Win	Physical Aggression	Verbal Aggression	Anger	Hostile	Aggression
Will to Win	1.000					
Physical Aggression	0.031	1.000				
Verbal Aggression	-0.052	0.144				
Anger	0.011	0.078	0.019	1.000		
Hostile	0.134	0.310	0.413	0.206	1.000	
Aggression	0.273	0.646	0.569	0.507	0.787	1.000

Table 3 shows the matrix table of will to win and aggression variables. The whole was done there, i.e. correlation of will to win with physical aggression, verbal aggression, anger, hostile and aggression.

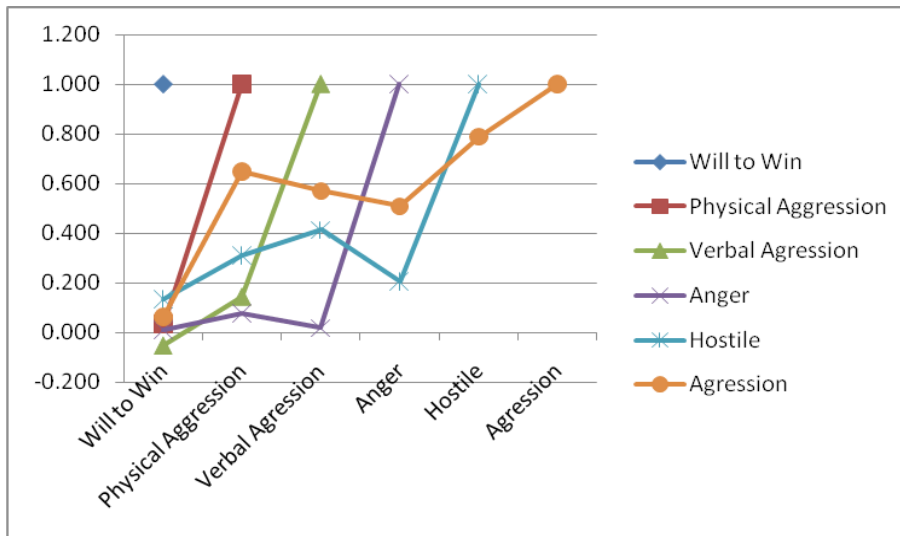


Figure 2: Graphical Representation of Relationship of will to Win and Aggression of West Zone Inter University Basketball Players

Table 4: Showing the Relationship of Will to Win and Physical Aggression of Interuniversity Basketball Players

Variables Correlated	Co-efficient Correlation
Will to Win Physical Aggression	0.031

df (58) = 0.254

Table 4 shows the correlation of will to win and physical aggression of west zone inter university basketball players. The co-efficient of correlation found was 0.031 which is smaller than the tabulated value. Hence, there was insignificant result found in will to win and physical aggression.

Table 5: Showing the Relationship of Will to Win and Verbal Aggression of Interuniversity Basketball Players

Variables Correlated	Co-efficient Correlation
Will to Win Verbal Aggression	-0.052

df (58) = 0.254

Table 5 shows the correlation of will to win and verbal aggression of west zone inter university basketball players. The co-efficient of correlation found was -0.052 which is smaller than the tabulated value. Hence, there was insignificant result found in will to win and verbal aggression.

Table 6: Showing the Relationship of Will to Win and Anger of Interuniversity Basketball Players

Variables Correlated	Co-efficient Correlation
Will to Win Anger	0.011

df (58) = 0.254

Table 6 shows the correlation of will to win and Anger of west zone inter university basketball players. The coefficient of correlation found was 0.011 which is smaller than the tabulated value. Hence, there was insignificant result found in will to win and anger.

Table 7: Showing the Relationship of Will to Win and Hostile of Interuniversity Basketball Players

Variables Correlated	Co-efficient Correlation
Will to Win Hostile	0.134

df (58) = 0.254

Table 7 shows the correlation of will to win and hostile of west zone inter university basketball players. The coefficient of correlation found was 0.134 which is smaller than the tabulated value. Hence, there was insignificant result found in will to win and hostile.

6. DISCUSSION OF HYPOTHESIS

In the beginning of this study, the researcher hypothesized there might be significant result among the selected psychological variables among the west zone inter university basketball players. But after analysis, it was found there is significant result between the psychological variables. So this hypothesis is accepted.

7. CONCLUSION

Psychology is both an applied and academic field that studies the human mind and behavior. Research in psychology seeks to understand and explain thought, emotion and behavior. Applications of psychology include mental health treatment, performance enhancement, self-help, ergonomics and many other areas that affect health and daily life. Today, psychologists prefer to use more objective scientific methods to understand, explain, and predict human behavior. Psychology has two major areas of focus: academic psychology and applied psychology. Academic psychology focuses on the study of different sub-topics within psychology including personality psychology, social psychology and developmental psychology. Will to win is defined as the intensity of the desire to defeat an opponent or to exceed some performance standard in a given sports. An individual high in will to win should be very competitive and should feel that winning is the major reason for competing. Winning or losing should affect their sense of self-esteem. There is some similarity between the will to win concept and need Achievement and, to a lesser extent, internal locus of control Will to win is also related to competence and some aspects of aggression. The will to win, the desire to success the urge to reach the focus of potential ability of these are the keys that will unlock the door to personal excellence. The excellence comes from the desire. The desire to win, to succeed to extend our self to reach at the full potential. These are the beneficial side of desire.

8. RECOMMENDATIONS

1. Similar study can be done on the large number of players.
2. Same can be done with the different physiological and psychological variables.
3. More can be done with different level of players such as nationals, internationals etc.
4. Similar study can be done with the female players or both.
5. Similar study can be done with the different games like volleyball, etc.

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Effect of Turbulence Training on the Selected Physical Fitness Variables of Female Kabaddi Players

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Abstract

Study Aim: The present investigation was conducted to determine the effects of 4-week Turbulence Training on Physical Fitness of female Kabaddi players. **Methods:** Thirty female players were selected as subjects for the present investigation, aged were ranging from 17–24 years. To investigate the influence, Turbulence Training was imparted to the subject of group A (Experimental group) and B (control group). The 4-week of Turbulence Training includes (i) Lying Hip Extension, (ii) Plank (iii) Prisoners Squat (iv) Bird Dog (v) Kneeling Push up (vi) Side Plank (vii) Band Pull (viii) Ab Curl-up. **Statistical Analysis:** In order to find out the effect of turbulence Training on physical fitness, the analysis of co-variance was applied at 0.05 level of significance. **Results:** The Turbulence Training leads to significant development of all physical fitness variables such as Standing broad jump (Feet & inches), Flex Arm Hang (Minutes & Seconds), Sit-ups (Minutes), Shuttle run (6*10 M) (Second), and 600 yard run/walk (Minutes). No significant differences were found in 50 M dash (Seconds) of female players at 0.05 level of significance.

Keywords

Turbulence Training, Physical Fitness, Female Kabaddi Players

1. INTRODUCTION

Turbulence training is a form of exercise that can be performed using bodyweight, weights or dumbbells and interval training to burn fat and build muscle. It is a combination of resistance and interval training. The idea behind turbulence training is to use your body in the ways that allow it to burn the fattest. It is the mixture of resistance and turbulence that allows this to happen. Turbulence training also features variety. The body naturally hits a plateau after doing the same exercises over and over. Turbulence training features a mix of exercises that helps the body not reach that plateau. Intensity is another important factor of turbulence training. The Turbulence Training workouts are 45 minutes to 1 hour in length because they utilize super-sets, circuits and interval training. Most of the workout plans are based on 3-4 day workouts per week for 4 weeks. The design of Turbulence training is depend on the objective or goal. i.e. to improve cardiovascular fitness or to develop strength. Normally, this workout is done by order or in a consecutive sequence in which involves “supersets”, where one exercise followed immediately (no rest) by the next exercise (A1 & A2).

There have been many studies on physical fitness but with the phenomenal and ever increasing popularity of physical fitness in the past few years, there is a surprising lack of research on this particular discipline and as a

result the present study had been undertaken to examine the effects of Turbulence Training on physical fitness of female kabaddi players.

Turbulence training is a type of exercise that constitutes of short bursts of exercise for 20 minutes maximum. It is divided into two subcategories: the interval training and the strength training. Turbulence training is mainly used for weight loss. The Turbulence Training Fat Loss Program is saying that you can shed the excess weight and create muscle. The system itself was developed by Craig Ballantyne as he wanted to help other people to realize their particular potential. According to the founder one can actually start reducing weight as well as toning up your muscles by simply doing exercises just three times a week. So in under 2 and 1/2 hours per week it is possible to start achieving your goals.

2. OBJECTIVE OF THE STUDY

The purpose of the study was to assess the effect of Turbulence Training on physical fitness of female kabaddi players.

2.1. Hypothesis

It was hypothesized that there will be no significant effect of Turbulence Training on physical fitness of female kabaddi players.

2.2. Identify, Research and Collect Idea

Thirty subjects were randomly selected from A.K.College, Shikohabad, Fzb (Uttar Pradesh, India) volunteered to participate in the study. To investigate the influence of 4-week Turbulence training was imparted to the subject of experimental "A" and control group "B". The groups were consisted of 15 subjects each. Prior to the testing and experimental programme the subjects were assembled and oriented regarding the objectives and requirements of the test items. The 4-week Turbulence training, lasting 45-60min each, which includes

Exercises	Repetition/Frequency	Recovery/Duration	Sets/Cycle
Lying Hip Extension	8 reps	Incomplete rest	2
Plank	15 seconds	30 seconds	3
Prisoners Squat	12 reps	Incomplete rest	1
Bird Dog	5 reps	Incomplete rest	3
Kneeling Pushup	8 reps	Incomplete rest	1
Side Plank	5 seconds	Rest 30 seconds	3
Band Pull	15 reps	Incomplete rest	1
Ab Curl-up	15rep	Rest 30 seconds	3

The Physical Fitness was measured by AAHPER youth fitness test scores. The physical fitness test items used for data collection for this study were Standing broad jump (Feet & inches), 50 M dash (Seconds), Flex Arm Hang (Minutes & Seconds), Sit -ups (Minutes), Shuttle run (6*10 M) (Second), and 600 yard run/walk (Minutes).

2.3. Statistical Analysis

To analysis the data statistically and to find the significant difference between experimental and control groups Descriptive statistics i.e. (Mean and Standard Deviation) and ANCOVA was used.

3. RESULTS

The study was conducted to find the effect of Turbulence Training on physical fitness of female kabaddi players. The statistical analysis of the data collected on twenty (N = 30) female kabaddi players is presented. For each of the chosen variable, the results pertaining to significant difference, if any, between groups were assessed by ANCOVA and are presented in tables:

Table 1. Mean Value and 'F' Value of Physical Fitness of Experimental and Control Group

Variables	Group	Number	Mean	'F' Value	'P' value
Standing Broad Jump	Experimental	15	5.48	15.15	.001*
	Control	15	5.05		
50 M Dash	Experimental	15	8.64	.050	.825
	Control	15	8.51		
Flex Arm Hang	Experimental	15	34.2	41.78	.000*
	Control	15	32.8		
Sit Ups	Experimental	15	28.93	7.89	.009*
	Control	15	24.73		
Shuttle Run	Experimental	15	17.46	4.53	.042*
	Control	15	17.57		
600 Yard run	Experimental	15	2.78	4.73	.038*
	Control	15	3.50		

*Significant at the .05 level of (14) = 2.144

Table 1 shows that mean of standing broad jump of experimental and control group was 5.48 and 5.05 respectively. The 'F' value in case of standing broad jump was 15.15 which is significant at the .05 level of (14) = 2.144. Thus, the null hypothesis of equality of means of two groups may be rejected. The mean of 50 Meter Dash of experimental and control group was 8.64 and 8.51 respectively. The 'F' value in case of 50 Meter Dash was 0.050. This F-value was not significant at the .05 level of (14) = 2.144. Thus, the null hypothesis of equality of means of two groups may not be rejected. The mean of Flex Arm Hang of experimental and control group was 34.2 and 32.8 respectively. The 'F' value in case of Flex Arm Hang was 41.78. This F-value was significant at the .05 level of (14) = 2.144. Thus, the null hypothesis of equality of means of two groups may be rejected. The mean of Sit ups of experimental and control group was 28.93 and 24.73 respectively. The 'F' value in case of Sit ups was 7.89. This F-value was significant at the .05 level of (14) = 2.144. Thus, the null hypothesis of equality of means of two groups may be rejected. The mean of Shuttle run of experimental and control group was 17.46 and 17.57 respectively. The 'F' value in case of Shuttle run was 4.53. This F-value was significant at the .05 level of (14) = 2.144. Thus, the null hypothesis of equality of means of two groups may be rejected. The mean of 600 Yard run of experimental and control group was 2.78 and 3.50 respectively. The 'F' value in case of 600 Yard run was 4.73. This F-value was significant at the .05 level of (14) = 2.144. Thus, the null hypothesis of equality of means of two groups may be rejected. Thus it may be concluded that four week turbulence training program leads to significant improvement in physical fitness of Kabaddi female players. No significant change over that four week turbulence training was noted in the control group. As per the study the above remark can be given at 95% confidence.

4. CONCLUSION

The result of present study shows the significant effect of Turbulence training on Kabaddi female players related to their Standing broad jump, Flex Arm Hang, Sit-ups, Shuttle run, and 600 yard run/walk. Turbulence training is a very effective method for fitness development. It includes very specific type of interval training known as "supersets. Turbulence Training uses non competing superset training, in which we use "Opposing Muscle Groups" in alternating exercises which is more effective than traditional straight sets. Australian researchers tested Turbulence Training style workouts against long, slow and boring cardio. The Turbulence training group exercised

3 days a week for just 20 minutes. The long, slow and boring cardio group exercised twice as long (40 minutes per workout). Findings have the support of previous study conducted by Craig Ballantyne that 4 week turbulence training program for beginners, intermediate & advanced fitness level shown significant difference.

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Nutritional Status and its Comparison Among Student from Different Income Status (Groups)

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Abstract

The purpose of the study to assess Nutritional status and its comparison among student from different income status (groups). For the purpose of the study, ninety male student of B.H.U. Varanasi (30 Higher Income, 30 Middle Income and 30 Lower Income) was randomly selected as the subject for the study. The age level of the subjects was ranging from 18 to 28 years. Prudent Diet was assessed by the total scores in Prudent Diet Questionnaire and Calorie control was assessed by the total scores in calorie control questionnaire. The data was analyzed by applying Descriptive statistic & ANOVA in order to assess and compare the nutritional status among student from different Income groups (30 Higher, 30 Middle and 30 Lower) of B.H.U. Varanasi. The lever of significance was set at 0.05. Results of this study have shown that there was a mean significant difference exit between higher income, Middle income & lower income in relation to Prudent Diet and mean insignificant difference exits between higher income, Middle income & Lower income in relation to Calories Control. It is concluded that, there is significant difference in the Prudent Diet of male students due to higher income, Middle income & Lower income and insignificant difference was found in case Calories Control of male students due to higher income, Middle income & Lower income.

Keywords

Nutritional status, Prudent Diet and Calories Control

1. INTRODUCTION

The original term was used by a sub-committee of the League of Nations (1932) referring to a set of medical task to determine the nutritional status of a population (Gibson, 2005). After 1976 (Bastian& Blackburn et al.), it became a standardized, hospital based set of tools to predict nutrition and health outcomes in individual patients with post-op complications, trauma or malnutrition. In 1996, Theresa Schneider RD decided to take assessment tools out of the hospital to assess the health of athletes, those with chronic diseases and corporate executives today a nutrition assessment includes computerized food intake analysis, clinical nutrition body composition assessment (bioelectrical impedance), laboratory blood test results if applicable, anthropometric, review of medications, lifestyle and fitness indicators. Whether your goal is to improve your athletic performance, or you want to make a nutrition lifestyle choice or you want to better manage your medical condition nutrition assessment can help you succeed. (Rosalind, S. Gibson, Principles of Nutritional Assessment, Second Edition, Oxford University Press, Oxford, 2005.)

Measures of nutritional intake estimate the amount of food a person is eating and can be used to assess adequacy of the quantity of dietary energy (and protein) supply. In simple terms, one can categorize people as being well-nourished or undernourished based on whether their intake of food matches their food energy needs or nutrient

requirements. The methodologies that provide such information are those based on national sample surveys or dietary surveys that attempt to measure the food consumption or intake levels of representative individuals within a population, as discussed by Ferro - Luzzi in this series. These methods of ten tend to provide an estimate of the risk of the population or individual to inadequacy of food but do not help to identify actual individuals in the population who are deficient; nor do they help define the degree of severity of the food inadequacy.

The prevalence of abnormal nutritional status has increased in children and adolescents since 1980 in both developed and developing countries, alerting the public health system for the possible risks in terms of cardiovascular, metabolic, and psychiatric diseases and economic impact for additional costs to prevent or manage the illness.

The second option assesses the nutritional status of the individual or a representative sample of individuals within a population by measuring anthropometric, biochemical or physiological (functional) characteristics to determine whether the individual is well nourished or undernourished. This method makes use of objective, measurable criteria that reflect the changes in anthropometric, biochemical or functional characteristics of the individual as a consequence of inadequate intakes of food for long periods of time, or as a result of seasonal fluctuations in intakes of food or poor absorption and utilization of ingested food. A hierarchical model of the causes of under nutrition emphasizes the importance of repeated infectious episodes and poor care and neglect as determinants of under nutrition, in addition to the lack of adequate food (UNICEF, 1998).

2. METHODOLOGY

For the purpose of the study, ninety male student of B.H.U. Varanasi (30 Higher Income, 30 Middle Income, 30 Lower Income) was randomly selected as the subject for the study. The age level of the subjects was ranging from 18 to 28 years. Prudent Diet was assessed by the total scores in Prudent Diet Questionnaire and Calorie control was assessed by the total scores in calorie control questionnaire. The data was analyzed by applying Descriptive statistic & ANOVA in order to assess and compare the nutritional status among student from different Income groups (30 Higher, 30 Middle and 30 Lower) of B.H.U. Varanasi. The lever of significance was set at 0.05.

3. RESULTS AND FINDING

The results pertaining to analysis of data between Dependent Variables (Higher income, Middle income & Lower income) and Independent Variable (Prudent Diet and Calories Control Questionnaire) Descriptive Statistics and Analysis of Variance (ANOVA) was used. The data pertaining to the results of analysis of students have been presented through the table No.

Table 1: Descriptive Statistics of Prudent Diet for Higher Income, Middle Income, and Lower Income Group of Male Students

Variable	Group	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Prudent Diet	Higher Income	30	13.7000	2.16795	.39581	7.00	18.00
	Middle Income	30	13.1000	2.89292	.52817	8.00	20.00
	Lower Income	30	15.1000	2.32453	.42440	11.00	20.00
	Total	90	13.9667	2.59407	.27344	7.00	20.00

Table 1 reveals that, the mean and standard deviation of Prudent Diet of Higher Income (13.70 ± 2.16 , Middle Income 13.10 ± 2.89 , Lower Income 15.10 ± 2.32).

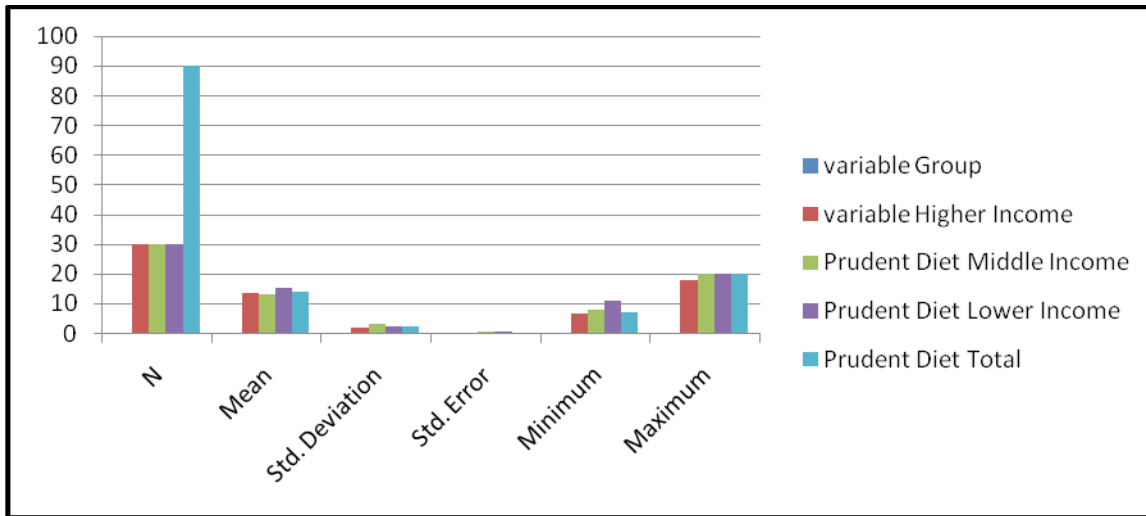


Figure 1: Graphical Representation of the Descriptive Statistics of Prudent Diet for Higher Income, Middle Income, and Lower Income Group of Male Students

Table 2: Analysis of Variance of the Means of Higher Income, Middle Income, and Lower Income Group in Relation to Prudent Diet

Variable		Sum of Squares	df	Mean Square	F-ratio
Prudent Diet	Between Groups	63.200	2	31.600	5.132
	Within Groups	535.700	87	6.157	
	Total	598.900	89		

* Significant at 0.05 level of significance; F = Ratio needed for significance at 0.05 level of significance = df (2, 87) = 3.09

The analysis of variance for Prudent Diet indicated that the resultant F-ratio of 5.132 was significant in case of Higher Income, Middle Income, and Lower Income means from which it is clear that the random assignment of subjects to the Higher Income, Middle Income, and Lower Income groups was quite successful. The F-ratio needed for significance with 2, 87 degree of freedom is 3.09 at 0.05 level of confidence. Thus, mean significant difference exists between Higher Income, Middle Income, and Lower Income group in relation to Prudent Diet.

Table 3: Descriptive statistics of Calories Control for Higher Income, Middle Income, and Lower Income group of male students

Variable	Group	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Calories Control	Higher Group	30	11.3000	2.85452	.52116	7.00	19.00
	Middle Class	30	10.9667	2.98829	.54558	7.00	18.00
	Lower Class	30	11.9333	2.53164	.46221	8.00	17.00
	Total	90	11.4000	2.79566	.29469	7.00	19.00

Table 3 reveals that, the mean and standard deviation of Calories Control of Higher Income (11.30 ± 2.85, Middle Income 10.96 ± 2.98, and Lower Income 11.93 ± 2.53).

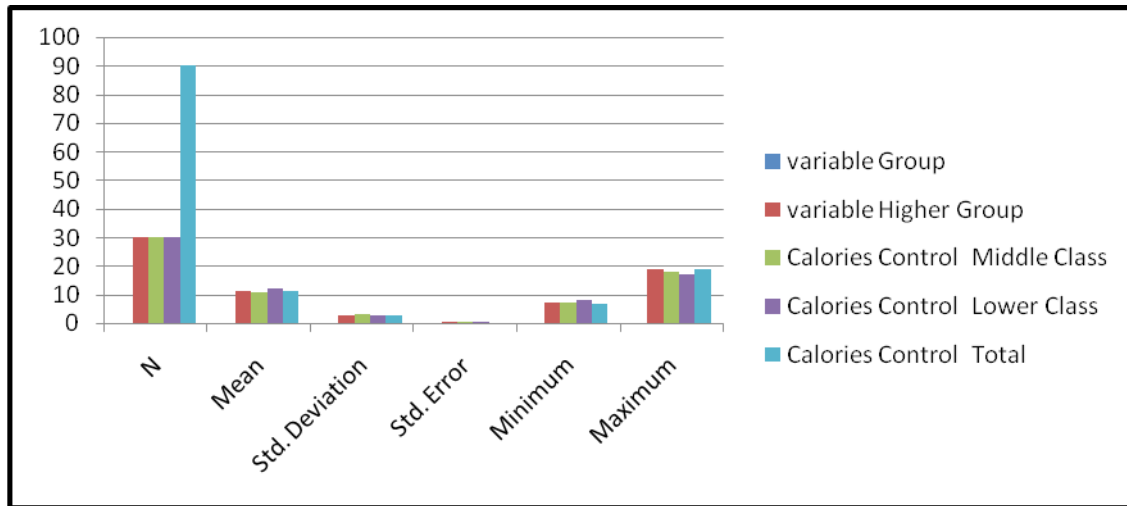


Figure 3: Graphical Representation of the Descriptive Statistics of Calories Control for Higher Income, Middle Income, and Lower Income Group of Male Students

Table 4: Analysis of Variance of the Means of Higher Income, Middle Income, and Lower Income Group in Relation to Calories Control

Variable		Sum of Squares	df	Mean Square	F-ratio
Calories Control	Between Groups	14.467	2	7.233	0.924
	Within Groups	681.133	87	7.829	
	Total	695.600	89		

* Significant at 0.05 level of significance; F = Ratio needed for significance at 0.05 level of significance = df (2, 87) = 3.09

The analysis of variance for Calories Control indicated that the resultant F-ratio of 0.924 was insignificant in case of Higher Income, Middle Income, and Lower Income means from which it is clear that the random assignment of subjects to the Higher Income, Middle Income, and Lower Income groups was quite successful. The F-ratio needed for insignificance with 2, 87 degree of freedom is 3.09 at 0.05 level of confidence. Thus, mean insignificant difference exists between Higher Income, Middle Income, and Lower Income group in relation to Calories Control.

4. DISCUSSION OF FINDING

Results of this study have shown that there was a mean significant difference exist between higher income, Middle income & lower income in relation to Prudent Diet and mean insignificant difference exists between higher income, Middle income & Lower income in relation to Calories Control. Results of the presented study are completely supported by other similar studies.

FeliFei Wang & Tim Mc Donald Studies on “To examine the influence of physical activity (PA) and BMI on health care utilization and costs among Medicare retirees”. This cross-sectional study was based on 42,520 Medicare retirees in a us-wide manufacturing corporation who participated in indemnity/preferred provider and one health risk appraisal during the years 2001 and 2002. Participants were assigned into one of the three weight groups: normal weight, overweight, and obese. PA behavior was classified into three levels; sedentary (o time/wk.), moderately active (1 to 3 times/wk.) and very active retirees had \$1456 , \$1731 and 1177 lower total health care charges than their sedentary counterparts in the normal weight, overweight, and obese groups, respectively (p<0.01). The very active retirees. Health care utilization and specific cast showed similar trends with PA levels for all BMI groups. The total health care charges were lower with higher PA level for all age groups (p<0.01). Regular PA has strong do response

effects on both health care utilization and costs for overweight/obese as well as normal weight people. Prompting active lifestyle in this Medicare population, especially overweight and obese groups, could potentially improve their well-being and save a substantial amount of health care expenditures. Because those Medicare retirees are hard to reach in general, more creative approaches should be launched to address their needs and interests as well as help reduce the usage of health care system.

5. CONCLUSIONS

On the basis of analysis and the results of the study following conclusion were drawn:

In the light of the findings, it is concluded that, there is significant difference in the Prudent Diet of male students due to higher income, Middle income & Lower income.

In the light of the findings, it is concluded that, there is insignificant difference in the Calories Control of male students due to higher income, Middle income & Lower income.

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Effect of Pranayama on Haemoglobin Level of Young Soccer Players

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Abstract

Background: Pranayama training program can change the physiological work efficiency in terms of aerobic efficiency (VO₂max). In the game soccer, increase of desired aerobic efficiency of players proportionate to the increase of haemoglobin (Hb) level. Through various studies found that Pranayama practices with adequate duration, intensity, and mode appropriated to achieve the desired Hb level.

Objective: The objective of the study was to investigate the effect of Pranayama training program on haemoglobin level of young soccer players.

Methods: Twenty (N = 20) male young soccer players between 13-15 years of age were randomly selected from the soccer club – KRYPSA, Imphal, as the subjects, those participated state level sub-junior competition at minimum and divided into two groups consisting of ten (10) players each as experimental group and control group. Three (3) Pranayama exercises- Anuloma-viloma, Bhastrika and Kapalhati were administered on experimental group only for six weeks (42 days). The pre and post tests data were collected before and after the six weeks (42 days) training program respectively to find out the significant improvement and tested at 0.05 level of confidence.

Results: The pre and post tests means and standard deviations (M ± SD) for experimental group were 13.76 ± 0.89 and 14.32 ± 0.78 respectively, and for control group were found to be 13.84 ± 0.85 and 13.97 ± 0.87 respectively. The paired sample t-test analysis had shown the significant difference for the experimental group as the obtained value of paired sample t = (-) 5.36 > 2.262, but no significant difference was found for control group as obtained t = (-) 1.33 < 2.262, where, the tabulated value of t = 2.262 at 0.05 level of confidence. Further, the result of analysis of covariance (ANCOVA) also revealed the significant difference among the pre and post means comparison between the experimental and control groups as the obtained critical value of F = 9.031 > 4.45, where, the tabulated value of F = 4.45 at 0.05 level of confidence.

Conclusion: There was the significant improvement of six weeks (42 days) systematic Pranayama training program on haemoglobin level of young soccer players.

Keywords

Soccer, Pranayama, Haemoglobin

1. INTRODUCTION

1.1 Background

In the modern sports world, soccer is the most popular game inspired and charmed in the billion eyes of the world. Soccer gathering becomes the biggest institution in the world sports scenario.

Soccer fitness is predominantly expressed by high physiological work efficiency in terms of aerobic capacity ($VO_2\max$) and intensive anaerobic output. Soccer players need to improve their aerobic and anaerobic systems because of the running and power jump in the game that may continue for 90 minutes or more. Reilly (2003) expressed that the total distance covered by high-intensity exercise during a match is related to the standard of soccer, with top-class players covering the most distance. Thus, a player needs a relatively high maximum oxygen uptake during a soccer match can be as high as 70% of $VO_2\max$. An increase in $VO_2\max$ and the ability to sustain exercise for a prolonged period can be obtained by aerobic training, which is proportionate to the level of haemoglobin (Hb). Hb is a protein component, which is found in red blood cells, carries the oxygen in the blood, and does the flow of oxygen-rich blood to the muscle cells. Hb binds O_2 and releases CO_2 . Hb is transported through the heart and blood vessels to the muscle, and keep the muscles to work for longer duration. As the body is exercised, though the metabolic activity is high, more acids (hydrogen ions, lactic acid) are produced and the local pH is lower than normal. The low pH reduces the attraction between O_2 and Hb and causes the Hb to release more oxygen than usual. This increases the O_2 delivery to the muscle. The iron in Hb of blood carries the oxygen into the lungs to all tissues throughout the body, and myoglobin (Mb) in muscle holds and stores O_2 for use during exercise.

Thus, having adequate iron stores is particularly important during exercise when the Hb-rich RBC shuttle between the lungs and exercising muscle, bringing in fresh oxygen and eliminating CO_2 . It is acknowledged that, Hb is the important blood component that can increase the aerobic capacity of players. Hb also could be increased in the blood components by various training program. Pranayama practices have proved themselves to be effective in developing heart and lungs efficiency. Therefore, long-term Pranayama training program with appropriate duration, intensity, and mode might change the blood components as well as desirable $VO_2\max$ by the increase of haemoglobin level.

1.2 Objective

The objective of the study was to investigate the effect of Pranayama training program on haemoglobin level of young soccer players.

1.3 Hypothesis

It was hypothesized that, there might be significant effect of Pranayama training program on haemoglobin level of young soccer players.

2. METHODS

2.1 Selection of the Subjects

For the purpose of the study, twenty ($N=20$) male young soccer players between the 13-15 years of age were selected as the subjects from the soccer club- KRYPSA, Imphal, by using the simple random sampling method.

2.2 Experimental Design

The study was formulated as an experimental design. Twenty ($N=20$) male young soccer players were divided into two groups consisting of ten (10) subjects each based on the initial test mean, and they were designated as experimental group and control group. The experimental treatments were assigned to experimental group only and the control group was kept control without engaging any extra specific training except their daily routine practice. A pilot study was conducted with five selected subjects to determine the load intensity and duration of Pranayama

practices. The duration of the training program was of six weeks (42 days) and administered in soccer ground of the club for six days (Monday, Tuesday, Wednesday, Thursday, Friday and Saturday) in a week beside the their daily soccer practice. The minimum participation of subjects was state level sub-junior competition. Three (3) Pranayama exercises- Anuloma-viloma, Bhastrika and Kapalbhati were administered on experimental group only.

Table 1: Schedule of Pranayama Training for Six (6) Weeks

Week	Pranayama	Duration	Repetition	Total Duration
I	- Anuloma-Viloma	4min	1	6min
&	- Bhastrika	1min	1	
II	- Kapalbhati	1min	1	9min
III	- Anulom-Vilom	5min	1	
&	- Bhastrika	1min	2	
IV	- Kapalbhati	1min	2	12min
V	- Anulom-Vilom	6min	1	
&	- Bhastrika	1min	3	
VI	- Kapalbhati	1min	3	

2.3 Data Collection and Analysis

The data sample collection was conducted before and after six weeks training program immediately in the laboratory of SRL Diagnostic Centre, RIMS Road, Imphal, under the strict pathological administration and accepted to be valid and reliable enough with absolute precision for the purpose of the study. The unit of the haemoglobin was expressed in gm/dl.

To determine the effect of Pranayama training programs on haemoglobin levels of young soccer players, descriptive analysis, paired sample t-test and analysis of covariance (ANCOVA) statistical techniques were employed and the level of significance was set at 0.05 to test the hypothesis.

3. FINDINGS

The descriptive analysis of pre and post tests of experimental and control groups have been shown in Table 2.

Table 2: Descriptive Analysis of Experimental and Control Groups

Group	N	Range	Min	Max	Mean	SD	SE
Expt- Pre	10	2.50	12.50	15.00	13.76	0.89	0.28
Expt-Post	10	2.50	13.00	15.00	14.32	0.78	0.25
Cntl- Pre	10	2.50	12.50	15.00	13.84	0.85	0.27
Cntl-Post	10	2.50	13.00	15.00	13.97	0.87	0.27

Table 2 reveals that the pre and post tests means and standard deviations ($M \pm SD$) of experimental group were 13.76 ± 0.89 and 14.32 ± 0.78 respectively ($N=10$), and further, the pre and post tests means and standard deviations of control group were 13.84 ± 0.85 and 13.97 ± 0.87 respectively. The table also reveals the characteristics of range (R), minimum (Min), maximum (Max) and standard error (SE) of pre and post tests for experimental and control groups.

The graphical representation of pre and post tests means comparison of experimental and control groups has been shown at Fig. 1.

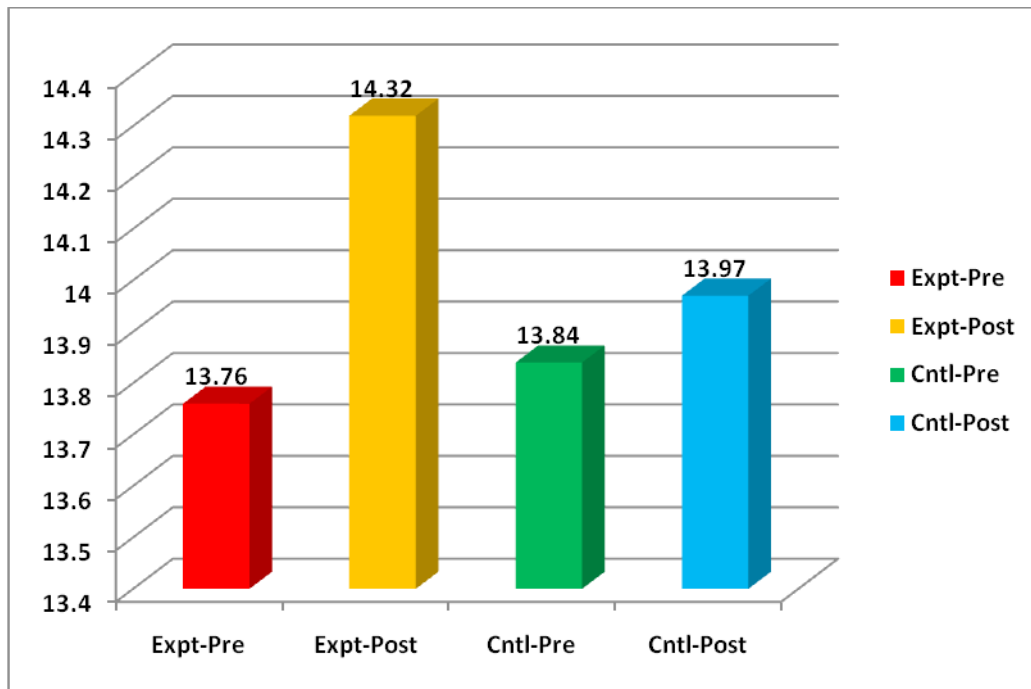


Figure 1. Pre and Post Test Means Comparison of Experimental and Control Groups

The *t*-test analysis of pre and post tests means for experimental and control groups have been shown in Table 3.

Table 3: Pre and Post Tests Means Comparison of Experimental Group and Control Group

Groups	Paired Differences					t	df	Sig. (2-tailed)
	MD	SD	SEM	95% Confidence Interval of the diff.				
				Lower	Upper			
Expt-Pre Expt-Post	-0.56	0.33	0.10	-0.80	-0.32	-5.36*	9	0.00
Cntl-Pre Cntl-Post	-0.13	0.31	0.09	-0.35	0.09	-1.33 ^o	9	0.22

*Significant at 0.05 level of confidence, $t_{0.05(9)} = 2.262$, N = 10

^oNot Significant at 0.05 level of confidence, $t_{0.05(9)} = 2.262$, N = 10

Table 3 reveals that there was the significant difference between the pre-test and post-test means of the experimental group as the obtained value of paired sample $t = (-)5.36$ is greater than the tabulated value of $t = 2.262$. But, no significant difference between the pre-test and post-test means of the control group as the obtained value of paired sample $t = (-)0.86$ is lesser than the tabulated value of $t = 2.262$. Therefore, it shows that there was significant effect of six weeks Pranayama training programme on the haemoglobin level of young soccer players in case of experimental group.

The Table 4 shows the pre and post tests means comparison between experimental and control groups by employing the analysis of covariance (ANCOVA).

Table 4: Pre and Post Tests Means Comparison Between Experimental and Control Groups

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Group	0.883	1	0.883	9.031*	0.008
Error	1.662	17	0.098		
Total	4014.530	20			

*Significant at 0.05 level of confidence, $F_{(1,17)} = 4.45$, N = 20

Table 4 reveals that there was the significant difference of pre and post tests means comparison between the experimental and control groups as the obtained critical value of $F = 9.031$ is greater than the tabulated value of $F = 4.45$. Therefore, it shows that the six weeks selected Pranayama training programme was effective for the improvement of haemoglobin level of young soccer players.

4. DISCUSSION

Higher level of haemoglobin is required to supply sufficient oxygen (O_2) to the working muscles during the high intensive exercise. The soccer player who is obtaining higher haemoglobin (Hb) level could possess the potentiality of higher aerobic capacity ($VO_2\max$). It is also proved that different training could improve the aerobic efficiency of players. The findings of the study had shown that the pre and post tests means and standard deviations ($M \pm SD$) of experimental group were 13.76 ± 0.89 and 14.32 ± 0.78 respectively, and for control group were 13.84 ± 0.85 and 13.97 ± 0.87 respectively. The results of paired sample t-test analysis had shown that there was the significant difference of pre and post tests means for the experimental group as the obtained value of paired sample $t = (-)5.36$ is greater than the tabulated value of $t = 2.262$. But, no significant difference was found for the control group as the obtained value of $t = (-)0.86$ is lesser than the tabulated value of $t = 2.262$. Further, the result of analysis of covariance (ANCOVA) had revealed the significant differences of pre and post tests means comparison between the experimental and control groups as the obtained critical value of $F = 9.031$ is greater than the tabulated value of $F = 4.45$. Therefore, there was the significant effect of six weeks selected Pranayama training program on haemoglobin level of young soccer players. Hence, the research hypothesis of this study was accepted.

5. CONCLUSION

The findings clearly revealed that through the paired sample t-test and analysis of covariance (ANCOVA) showed the significant improvement of six weeks (42 days) selected Pranayama training on haemoglobin level by comparing within and between the pre and post tests means of experimental and control groups. The improvement on haemoglobin level might be due to the training plan, structure, adaptation of load and sincerity of the players. Therefore, Pranayama practices are effective for the improvement of haemoglobin level and might enhance the aerobic efficiency ($VO_2\max$) of young soccer players.

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