



**ATTITUDE OF PRIVATE AIDED HIGH SCHOOL BOYS COMING  
UNDER MYSORE ZONE TOWARDS  
PHYSICAL EDUCATION AND SPORTS**

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**ABSTRACT**

This study examined the attitude of private aided high school boys towards physical education and sports of Mysore division. To fulfil this objective 480 private aided high school boys were studying in 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> Standard ranging 14-16 year old from eight districts of Mysore Zone of Karnataka State were selected as subjects. For collection of data researcher developed and standardised a questionnaire of "Attitude Scale toward Physical Education and Sports (ASTPES) for high school boys", which consist of 40 questions, 8 questions each on five aspects such as Academic aspects, psychological aspects, General aspects, Social aspects, Health aspects. Data was tabulated and percentage on responses of subjects for each questions on different aspects were calculated and compared. Result says that, positive attitude shown towards physical education and sports in all aspects and also they viewed the emergency of drastic change in the physical education and sports curriculum and its implementation is needed at high school level to offer a complete education.

**Keywords:** Attitude; Physical Education and Sports; High School Boys; Private Aided School, Mysore Zone.

## 1. INTRODUCTION

With the increased attention towards the academic pursuit have resulted neglecting the development of inborn physical qualities inherited by the students. As a result the students are at a higher risk of hypo kinetic diseases. To eliminate this problem, physical education and sports seems to be the most appropriate sub systems and should fit into the total educational system. Physical education and sports program are strong motives and contribute towards physical fitness and exercise adherence, physical skill, sportsman spirit, fair play, co-operation, good citizenship and positive attitude towards life.

William James of Harvard University states that “The greatest discovery of my generation is that human beings can alter their lives by altering their attitudes of Mind”. Every individual is not good at everything, but he can definitely work towards something specific and he will get there a lot quicker. So, if we change the attitude towards some aspect set in mind of an individual can change his behaviour on that aspects. So, creating healthy/positive/good attitude towards physical education and sports is very important among children at grass root level.

Implementing scientifically drafted physical education and sports program during early age on the basis of their attitude will plays major role on creating culture of active life style among the student. A positive attitude will make a child healthy, caring, confidence, patient, and humble to participate actively in physical education and sports program, whereas negative attitude create an unpleasant environment at home, school and make him to lead sedentary life style, suffer hyperkinetic diseases and become a liability to society and even they pass their negative behaviour to other around them and to future generation.

With this background the research scholar has taken up a project to study the attitude of high school boy's attitude towards physical education and sports.

## 2. METHODOLOGY

Descriptive survey method was carried out in this study. The details regarding sample, tool, procedure of data collection and statistical technique are explained below.

### 2.1 Sample:

**2.1.1 Source:** High Schools boys studying in private aided School situated in eight districts coming under Mysore zone of Karnataka were considered as source of sample.

**2.1.2 Sampling technique:** Stratified Random Sampling Technique was adopted.

**2.1.3 Sample Size:** 65 students each from 8 districts belongs to Mysore zone were selected. Finally total of 520(65X8) high school boys were selected.

**2.1.4 Sample Characteristics:** High school boys studying in 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standard ranging from 14-16 year old were selected as sample.

### 2.2 Tool

Researcher developed and standardized a questionnaire called “Attitude Scale toward Physical Education and Sports (ASTPES) for high school boys” was used as tool for collection of data. The scale consists of 40 statements of which, 20 positive statement and the remaining 20 statements are negative. This is a paper and pencil self – report instrument with a 5-point Likert – scale continuum, namely strongly agree, agree, undecided, disagree and strongly disagree with assigned score 5,4,3,2 and 1, for positive statements and vice versa for negative statements. The minimum and maximum score one

could get is 40 and 200, respectively. The attitude score of a respondent can be calculated by adding up the scores obtained by him on all the items. Questionnaire has construct validity and face validity with having Split-half method of reliability correlation co-efficient of 0.89. Procedure followed during standardization of questionnaire is explained in the following table.

**TABLE 1**  
**DELINEATION OF STATEMENT AT VARIOUS STEPS OF ATTITUDE SCALE CONSTRUCTION**

Steps in attitude scale construction	No. of Statement	
	Statement considered	Statements retained
Collection of items	82	72
Editing of items	72	61
Relevancy analysis	61	51
Item analysis	51	40
Reliability and Validity	40	40

**2.3 Procedure of Data Collection:**

In this study self administered and group administered method was adopted to anticipate high response rates since the researcher could ensure that all the questions were answered through assistance to the respondents in understanding the questions. The researcher requested and agreed with physical education teacher in each school to get support in distributing and collecting questionnaire during the process. The questionnaires were administered in normal class conditions and were completed during a physical education class.

**2.4 Statistical Technique:**

Frequency count, percentage, means and descriptive statement were used to analyze the items of the questionnaire. Then the data were organized and presented in the form of tables and chart to achieve meaningful conclusion. The responses of the subjects were tabulated according to the aspects included in the questionnaire. To achieve meaningful conclusion percentage was calculated on responses to each statement on five different aspects given by govt high school boys towards physical education and sports. The average response of total percentage is compared in between five difference aspects were also calculate to fulfill the objective of the study.

**3 RESULTS**

The results were presented in the following tables. To achieve meaningful conclusion percentage was calculated on responses to each statement on five different aspects given by Govt high school boys towards physical education and sports. The average response of total percentage is compared in between five difference aspects were also calculate to fulfill the objective of the study.

**TABLE 2**  
**ATTITUDE OF PRIVATE AIDED HIGH SCHOOL BOYS COMING UNDER MYSORE ZONE**  
**TOWARDS PHYSICAL EDUCATION AND SPORTS ON**  
**ACCADEMIC ASPECTS**

QN	Particulars	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
01	Compulsory physical education and sports is an ideal thing to be implemented at school level	154	29.62	110	21.15	64	12.31	190	36.54	2	0.38
02	One of the most encouraging trend in modern education is the growing recognition of the importance of physical education and sports	175	33.65	110	21.15	190	36.54	43	8.27	2	0.38
03	Physical education and sports programs in the school are not able to be meet the needs and interest of the students	3	0.58	39	7.50	214	41.15	22	4.23	242	46.54
04	Physical education and sports programs should be an integral part of the school education system	198	38.08	88	16.92	231	44.42	0	0.00	3	0.58
05	Physical education and sports has little value and should be eliminated from the school curriculum	1	0.19	65	12.50	234	45.00	44	8.46	176	33.85
06	Students participating in physical education and sports programs feel tired and not able to study during the study time	2	0.38	0	0.00	254	48.85	88	16.92	176	33.85
07	Students in the schools should be made aware of the values and benefits of physical education and sports programs	132	25.38	153	29.42	193	37.12	41	7.88	1	0.19
08	Physical education and sports programs should not be considered as a part of school education	2	0.38	1	0.19	43	8.27	364	70.00	110	21.15

Table 2 shows the result of second aspect, psychological benefits of physical activity and result shows positive attitude towards Academic aspects of physical education and sports. As for as academic aspects of the questionnaire 264/50.77% of private aided high school boys are agreed that Compulsory physical education and sports is an ideal thing to be implemented at school level. 285/54.81% of private aided high school boys are agrees that physical education and sports is growing its recognition in modern education system. 264/50.77% of private aided high school boys are disagreed for physical education and sports programs in the school are not able to be meet the needs and interest of the students. 286/55%of private aided high school boys are agreed for physical education and sports programs should be an integral part of the school education system. 220/42.31% of private aided high school boys are disagreed for the physical education and sports has little value and should be eliminated from the school curriculum. 264/50.77% of private aided high school boys are disagreed for

students participating in physical education and sports programs feel tired and not able to study during the study time. 285/54.81 % of private aided high school boys are agreed for students in the schools should be made aware of the values and benefits of physical education and sports programs. 474/91.15% of private aided high school boys are disagreed for physical education and sports programs should not be considered as a part of school education.

**TABLE 3**  
**ATTITUDE OF PRIVATE AIDED HIGH SCHOOL BOYS COMING UNDER MYSORE ZONE**  
**TOWARDS PHYSICAL EDUCATION AND SPORTS ON PSYCHOLOGICAL ASPECT**

Q N	Particulars	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
01	Participation in physical education and sports should not improve the mental abilities of the students and there by the academic objects also.	2	0.38	62	11.92	237	45.58	21	4.04	198	38.08
02	Physical education and sports programs help to develop qualities like courage, cooperation, decision making etc. and make positive attitude of the students.	306	58.85	22	4.23	192	36.92	0	0.00	0	0.00
03	Physical education and sports activity are important for developing mental health of the students	110	21.15	88	16.92	214	41.15	106	20.38	2	0.38
04	Physical education and sports activity cannot help to develop emotional stability and there by controlling short temper	219	42.12	175	33.65	103	19.81	21	4.04	2	0.38
05	Participation in physical education and sports makes the students more bold in facing difficulties and challenges in life	263	50.58	22	4.23	214	41.15	19	3.65	2	0.38
06	Participation in physical education and sports make no contribution to the development of personality	3	0.58	21	4.04	232	44.62	66	12.69	198	38.08
07	Physical education and sports activities develop unhealthy relationship and rivalry among students	2	0.38	0	0.00	171	32.88	193	37.12	154	29.62
08	Emotional expressions cannot be brought under control through participation in physical education and sports.	2	0.38	108	20.77	83	15.96	44	8.46	283	54.42

Table 3 shows the result of second aspect, psychological benefits of physical activity and result shows positive attitude towards psychological aspects of physical education and sports. As for as psychological aspects of the questionnaire 219/42.12% of private aided high school boys are disagreed for participation in physical education and sports should not improve the mental abilities of the students. 328/63.08% of private aided high schools boys are agreed for physical education and sports programs help to develop qualities like courage, cooperation, decision making etc. and make positive attitude of the students. 198/38.08% of private aided high school boys are agreed for physical education and sports activity are important for

developing mental health of the students. 394/75.77% of private aided high school boys are agreed for physical education and sports activity cannot help to develop emotional stability and there by controlling short temper. 285/54.81% of private aided high school boys are agreed for participation in physical education and sports makes the students bolder in facing difficulties and challenges in life. 264/50.77% of private aided high school boys are disagreed for participation in physical education and sports make no contribution to the development of personality. 391/75% of private aided high school boys are disagreed for physical education and sports activities develop unhealthy relationship and rivalry among students. 327/62.88% of private aided high school boys are disagreed for emotional expressions cannot be brought under control through participation in physical education and sports.

**TABLE 4**  
**ATTITUDE OF PRIVATE AIDED HIGH SCHOOL BOYS COMING UNDER MYSORE ZONE**  
**TOWARDS PHYSICAL EDUCATION AND SPORTS ON GENERAL ASPECT**

Q N	Particulars	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
01	Physical education and sports should be made optional in school for those who are not interested in it	0	0.00	149	28.65	21	4.04	132	25.38	218	41.92
02	Student should be given awards and privileges those who are outstanding in physical education and sports.	88	16.92	218	41.92	127	24.42	87	16.73	0	0.00
03	Physical education and sports programs are meant only for those who are physically fit and not for others.	0	0.00	127	24.42	44	8.46	261	50.19	88	16.92
04	Physical education and sports do not provide opportunities for learning moral spiritual values of life	0	0.00	109	20.96	42	8.08	261	50.19	108	20.77
05	Physical education and sports activities are meant only for fun and enjoyment	0	0.00	107	20.58	43	8.27	261	50.19	109	20.96
06	Accepting the abilities and a question others are learnt through participation in physical education and sports	174	33.46	240	46.15	42	8.08	64	12.31	0	0.00
07	Participation in physical education and sports programs develops punctuality and descriptive among students	238	45.77	153	29.42	0	0.00	129	24.81	0	0.00
08	Participation in physical education and sports do not make a person more human in his attitude	0	0.00	63	12.12	21	4.04	153	29.42	283	54.42

Table 4 shows the result of general aspect i.e. general attitude towards physical education and sports which consists of eight questions. As for as psychological aspects of the questionnaire, 350/67.31% of private aided high school boys are disagree for physical education and sports should be made optional in school for those who are not interested in it. 306/58.85% of private aided high school boys are agreed for student should be given awards and privileges those who are outstanding in physical education and sports. 349/67.12% of private aided high schools boys are disagree for physical education and sports programs are meant only for those who are physically fit and not for others. 369/70.96% of private aided high school boys are agreed for physical education and sports do not provide opportunities for learning moral spiritual values of life 370/71.15% of private aided high school boys are disagree for physical education and sports activities are meant only for fun and enjoyment. 414/79.62% of private aided high school boys are agreed for accepting the abilities and a question of others are learnt through participation in physical education and sports.

391/75.19% of private aided high school boys are agreed for participation in physical education and sports programs develops punctuality and descriptive among students. 436/83.85% of private aided high school boys are agreed that participation in physical education and sports do not make a person more human in his attitude.

**TABLE 5**  
**ATTITUDE OF PRIVATE AIDED HIGH SCHOOL BOYS COMING UNDER MYSORE ZONE**  
**TOWARDS PHYSICAL EDUCATION AND SPORTS ON SOCIAL ASPECT**

Q N	Particulars	Strongly Agree		Agree		Undeci-ded		Disagree		Strongly Disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
01	Students who participate in physical education and sports are more sociable	329	63.27	167	32.12	24	4.62	0	0.00	0	0.00
02	Participation in physical education and sports programs provide ample opportunities for making friends more easily than in the class room	305	58.65	213	40.96	2	0.38	0	0.00	0	0.00
03	Physical education and sports programs help to develop the individual leadership qualities	285	54.81	192	36.92	0	0.00	43	8.27	0	0.00
04	Participation in physical education and sports do not help to promote social adjustments	4	0.77	22	4.23	60	11.54	215	41.35	219	42.12
05	Physical education and sports contribute nothing valuable to our culture	3	0.58	42	8.08	63	12.12	150	28.85	262	50.38
06	There is feeling among students that those who participate in physical education and sports may loss their character	2	0.38	44	8.46	63	12.12	279	53.65	132	25.38
07	Participation in physical education and sports do not helps to overcome the barriers of cast, creed, religion etc.	4	0.77	108	20.77	168	32.31	65	12.50	175	33.65
08	Skills and qualities learnt from physical education and sports programs are essential for social life	219	42.12	195	37.50	80	15.38	21	4.04	5	0.96

Table 5 shows the result of social aspect of attitude towards physical education and sports which consists of eight questions. As for as psychological aspects of the questionnaire, 496/95.38% of private aided high schools boys agreed that students who participate in physical education and sports are more sociable. 518/99.62% of private aided high schools boys agreed that participation in physical education and sports programs provide ample opportunities for making friends more easily than in the class room. 477/91.73% of private aided high schools boys agreed that physical education and sports programs help to develop the individual leadership qualities. 434/83.46% of private aided high schools boys disagree for participation in physical education and sports do not help to promote social adjustments. 412/79.23% of private aided high schools boys disagree for physical education and sports contribute nothing valuable to our culture. 411/79.04% of private aided high schools boy disagree for participate in physical education and sports make loss in their character. 240/46.15% of private aided high school boys disagree for participation in physical education and sports do not helps to overcome the barriers of cast, creed, religion etc. 414/79.62 of private aided high school boys agreed that skills and qualities learnt from physical education and sports programs are essential for social life.

**TABLE 6**  
**ATTITUDE OF PRIVATE AIDED HIGH SCHOOL BOYS COMING UNDER MYSORE ZONE**  
**TOWARDS PHYSICAL EDUCATION AND SPORTS ON HEALTH ASPECT**

Q N	Particulars	Strongly Agree		Agree		Undeci-ded		Disagree		Strongly Disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
01	Some physical ailments can be prevented through regular participation in physical education and sports	196	37.69	256	49.23	68	13.08	0	0.00	0	0.00
02	It is possible to improve the health and wellness of the students without physical education and sports program	2	0.38	0	0.00	83	15.96	238	45.77	197	37.88
03	Physical education and sports plays a vital role in the growth and development of the students	154	29.62	300	57.69	66	12.69	0	0.00	0	0.00
04	Physical education and sports are concerned with muscle building only	2	0.38	21	4.04	104	20.00	218	41.92	175	33.65
05	A healthy mind is developed in a healthy body through physical education and sports	195	37.50	301	57.88	24	4.62	0	0.00	0	0.00
06	Physical education and sports programs are essential for the development and maintenance of good health	174	33.46	238	45.77	107	20.58	0	0.00	1	0.19
07	Participation in physical education and sports do not helps the students in acquiring good health habits	2	0.38	42	8.08	64	12.31	281	54.04	131	25.19
08	Participation in physical education and sports give no benefits to health and well being	0	0.00	0	0.00	2	0.38	323	62.12	195	37.50

Table 6 shows the result of mental aspect of attitude towards physical education and sports which consists of eight questions. As for as psychological aspects of the questionnaire, 452/86.92% of private aided high schools boys agreed that some physical ailments can be prevented through regular participation in physical education and sports. 435/83.65% of private aided high schools boys disagreed that it is possible to improve the health and wellness of the students without physical education and sports program. 434/87.31% of private aided high schools boys agreed that physical education and sports plays a vital role in the growth and development of the students. 393/75.58% of private aided high schools boys disagree for physical education and sports are concerned with muscle building only. 496/95.38% of private aided high schools boys agreed that a healthy mind is developed in a healthy body through physical education and sports. 412/79.23% of private aided high schools boys agreed that physical education and sports programs are essential for the development and maintenance of good health. 412/79.23% of private aided high schools boys disagree for participation in physical education and sports do not helps the students in acquiring good health habits. 518/99.62% of private aided high schools boys disagree for participation in physical education and sports give no benefits to health and well being.



## **4. DISCUSSION**

### **4.1 Academic Aspects:**

Summarized data in the table 1 showed the private aided high school students of Mysore zone have wide varieties of views toward physical education and sports with reference to academic aspect. In particular, students viewed that physical education and sports program should be made an integral part of school curriculum and it is an ideal thing to be implemented in the school curricular as compulsory subject on the basis of its values and its contribution towards general education. They viewed that there is an encouraging trend on the growing recognition of the importance of physical education and sports in modern education system at high school. They also viewed that presently implemented physical education and sports program is not able to meet the need and interest of the each individual student hence individual attention is implemented in future. They even agreed that the values and benefits of physical education and sports program should be taught and made aware among the students. The data shows the emergency of drastic changes made in the physical education and sports curriculum and on its implementation at high school level to offer a complete education.

### **4.2 Psychological Aspects:**

Students agreed that physical education and sports program increase mental ability and mental health. Students also agreed physical education and sports programme also develop the qualities such as courage, cooperation, decision making and positive attitude. Students also agreed that physical education and sports activities helps to develop emotional stability and makes the boys bolder in facing difficulties and challenges in life and develop healthy relationship among the boys. Students also agreed good attractive personality will be developed through scientific physical education and sports program in the school curriculum. Finally concluded that concern to Psychological aspects the private aided high school boy's of Mysore zone are having positive attitude.

### **2.3 General aspects:**

Students viewed that physical education and sports should be provided to each individual child irrespective of their physical fitness, interest, ability etc. and make compulsory to all the boys. They are disagreed for physical education and sports as optional subject. They viewed participation in physical education and sports is more than fun/ enjoyment because it also develops the qualities of punctuality and make an individual moral, spiritual, more human in their attitude. Overall result revealed that majority of the private aided high schools boys have positive attitude towards physical education and sports related to questions.

### **2.4 social aspects:**

They opinioned that, physical education and sports program provides ample opportunities for making friends more easily will make a boys more sociable. They also agreed that physical education and sports program will develop good character, leadership qualities and helps to overcome the barriers of cast, creed, religion there it promote social adjustment among pupil. Boys also viewed that physical education and sports will make them to enjoy and learn social life with in the school premises. Overall result revealed that majority of the private aided high school boys had positive relationship regarding to social aspects.

### 2.5 health aspects:

Result revealed that students viewed participation in physical education and sports improves and maintains health of the high school boys. They viewed that participation in physical education and sports not only help to build muscle but also help to prevent some physical ailments and contribute on growth and development, improves health, wellness of high school boys. Boys agreed that healthy mind is developed in a health body.

## 5. CONCLUSION

The private aided high school boys of Mysore zone have positive attitude toward physical education and sports with reference to academic aspect. Result reveals that there is an emergency of drastic changes made in the physical education and sports curriculum and on its implementation at high school level to offer a complete education. Concern to Psychological aspects of attitude towards physical education and sports the private aided high school boy's of Mysore zone are having positive attitude. Overall result revealed that the private aided high schools boys have positive attitude towards physical education and sports related with regards to social aspects of attitude. Overall result revealed that majority of the private aided high school boys had positive attitude towards physical education and sports with regarding to social aspects.

Finally it was concluded that boys who are studying in 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> std. were having positive attitude towards physical education and sports. A positive attitude towards physical education and sport is the primary determinant affair for healthy and physically active life style. Hence physical education and sports is considered primary and compulsory in the high school curriculum to fulfill need of the students.

## REFERENCES

- Jhange H. S. & Prabhu, Ananthapadmanabha (2012)**, "Attitude o Mangalore Univeristy Graduate Male Students Towards Physical Educaiton and Sports", Proceedings on UGC sponsored national seminar on Recent Trends in Physical Education, Sports, Health Education, Yoga and Stress Management, Published by Dept. of Physical Education, Catholicate College, Pathananthitta, First Edition, pp 67-74.
- Kirshore Kumar C. K.. Prabhu & Ananthapadmanabha (2019)**, "Construction of attitude scale toward physical education and sports for high school boys," International Journal of Fitness Health, Physical Education and Iron Games, vol. 06, pp. 27-38, Jan 2019.
- Kirshore Kumar C. K.. Prabhu & Ananthapadmanabha (2014)**, "The Socio-Economic Status and its Influence on Attitue toward Participation in Physical Education and Sports of Non-Residential High School Students," International Journal of Fitness Health, Physical Education and Iron Games, vol. 01, pp. 15-19, July 2014.
- Kirshore Kumar C. K.. Prabhu & Ananthapadmanabha (2014)**, "Physical Exercise and Sporting Activity: Students Participation, Barriers and Attitudes", Proceedings of the UGC-sponsored national conference on Broad Base Sports and Physical Eduation Structure at University, Thumkur Uniververstiy, pp 21-26, Sept.
- Kirshore Kumar C. K.. Prabhu & Ananthapadmanabha (2017)**, "Exercise for life : Why and How?", Proceedings of the national conference on Health and Fitness in Modern Society, Published Thumkur Uniververstiy, pp 9-11.
- Manoj & Ananthapadmanabha Prabhu, (2014)**, "Attitude of High School Physical Education Teachers, Students and their Parents towards Physical Education Subject

in Dakshina Kannada District”, International Journal of Engineering and Sports Sciences, Volume 1, Issue 7, pp 1-5.

**Prabhu., Ananthapadmanabha (2018)**, "Development of Scale to Measure the Attitude of High School Boys Towards Physical Education and Sports”, Proceeding of 7<sup>th</sup> International Multidisciplinary Conference Global Innovative Research Dimensions, Vol 7.



**A COMPARATIVE STUDY ON POSITIVE MENTAL HEALTH  
BETWEEN TRIBAL AND NON- TRIBAL ADOLESCENT  
BOYS OF BIHAR**

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**ABSTRACT**

The aim of the present study was to compare positive mental health of tribal and non-tribal adolescent boys of Bihar. This study was carried out on 200 tribal and 200 non-tribal adolescent boys of Bihar. Tribal adolescent boys were selected from from Bathudi, Binjhia, Birjia and Chik Baraik tribes of Bihar. The age range of selected subjects was between 14 to 17 years. To assess positive mental health of selected subjects, three dimensional positive mental health inventory namely self acceptance, ego strength and philosophy of life prepared by Agashe and Helode (2007) was preferred. The data pertaining to positive mental health between two study groups was assessed with the help of independent sample 't' test. It was found that positive mental health of non-tribal adolescent boys was far superior as compared to tribal adolescent boys. It was concluded that positive aspect of mental health is still lacking in tribal adolescent boys and needs to be enhanced so as to increase their quality of life.

**Keywords :** Adolescent, Positive mental health, Tribal, Non-tribal

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## 1. INTRODUCTION

In young persons psychiatric disorder are most common cause of disability. It is estimated that these psychiatric disorders are strongly correlated with their psycho-social functioning and risk behaviour (Gore et al., 2011; Kieling et al. 2011). In terms of tribal and non-tribal belongingness a study conducted by Venu Gopal and Ashok (2012) reported high prevalence of emotional and behavioural problems in tribal adolescents. But mental health is not just mental illness and according to Mental health is one of the related concepts to quality of life. According to the definition of world health organization (WHO), mental health is completely sound physical, mental and social concepts of each person. This positive aspect of mental health has also been propagated by Vaillant (2003). The models of Jahoda (1958) and Vaillant (2003) share the postulation that positive mental health is best envisaged as a multidimensional phenomenon. Strupp and Hadley (1977) also conceived mental health in its positive perspectives. This model has considered self-acceptance, ego-strength and philosophy of human nature/life as the major components of positive mental health.

Since adolescence is a important transition period from childhood to adulthood and it has major impact on persons future life, researchers have conducted scientific studies to assess emotional and behaviour problems of adolescents. Since India is a tribal dominated country, researchers have conducted studies on mental health issues in adolescent population on the basis of their tribal and non-tribal belongingness. The notable contributors in this regard are Venu Gopal and Ashok (2012), Arif and Eqbal (2016), Agarwal et al. (2018). But these studies mainly focuses on negative aspect of mental health and positive side of mental health was neglected. Since positive mental health encompassing sub-factors such as self acceptance, ego strength and philosophy of life are essential elements of quality of life, researcher decided to assess positive mental health of adolescent boys of Bihar on the basis of their tribal, non-tribal belongingness.

The objective of the present study was to compare positive mental health of tribal and non-tribal adolescent boys of Bihar. It was also hypothesized that non-tribal adolescent boys will show more magnitude of positive mental health as compared to tribal adolescent boys belonging to Bathudi, Binjhia, Birjia and Chik Baraik tribes of Bihar.

## 2. METHODOLOGY

### 2.1 Sample :-

The sample for this study comprise of 200 tribal adolescent boys from Bathudi, Binjhia, Birjia and Chik Baraik tribes respectively. From each tribe, 50 adolescent boys were selected. For comparative purpose 200 non-tribal adolescent boys were also selected. Adolescent subjects between 14 to 17 years of age were selected purposively in the present study.

### 2.2 Instrumentation

#### 2.2.1 Positive Mental Health Inventory :

To assess positive mental health of selected tribal and non-tribal adolescent boys, three dimensional positive mental health inventory prepared by Agashe and Helode (2007) was used. It consists of 36 questions and the total positive mental health score is based on sub-factors such as self acceptance, ego strength and philosophy of life. The test-retest reliability coefficient of this inventory is 0.723. .

### 2.3 Procedure:

200 tribal adolescent boys from Bathudi, Binjhia, Birjia and Chik Baraik tribes of Bihar were selected as sample. From each tribe 50 adolescent boys were selected. For comparative purpose 200 non-tribal adolescent boys were also selected. Proper ethical consideration was followed before conducting this study by the researcher. Positive mental health inventory prepared by Agashe and Helode (2007) was administered in a group of 5 to 10 subjects. The scoring of responses was based on author's manual and afterwards the data was tabulated in respective groups. To analyse the data, independent sample 't' test was used. Results are shown in table 1.

### 3. RESULT

**TABLE 1**  
**COMPARISON OF POSITIVE MENTAL HEALTH BETWEEN TRIBAL AND NON-TRIBAL ADOLESCENT BOYS**

Variable	Study Groups				t-ratio
	Tribal Adolescent Boys (N=200)		Non-tribal Adolescent Boys (N=200)		
	M	S.D.	M	S.D.	
Positive Mental Health	18.04	5.29	24.63	6.92	10.69*

\* Significant at .01 level

A perusal of entries reported in table 1 indicates statistical significant difference in positive mental health of tribal and non-tribal adolescent boys of Bihar. The reported  $t=10.69$  reveal that positive mental health of non-tribal adolescent boys ( $M=24.63$ ) was far superior as compared to tribal adolescent boys of Bihar ( $M=18.04$ ).

### 4. DISCUSSION

Chaplin (1975) in a model of positive mental health included adjustment, optimism and ability to tap own potential while others have incorporated self acceptance, ego strength in their model of positive mental health. Due to poor socio-economic conditions and climatic conditions, the tribal adolescents do not get opportunity to flourish in many fields. This may be the reason that they are unsure about their own strength and weaknesses and unable to face internal and external stressor. This reflects in their lower magnitude of positive mental health as compared to non-tribal adolescent boys who tend to enjoy more facilities and better socio-demographic environment.

### 5. CONCLUSION

On the basis of results, it may be concluded that non-tribal adolescent boys possesses more magnitude of positive mental health as compared to tribal adolescent boys.

### REFERENCES

- Agarwal, R., Yadav, K.S. and Nijhawan, M. (2018).** A comparative study of behaviour problems in tribal and nontribal children residing in urban areas. IOSR Journal of Dental and Medical Sciences, Vol. 17, Issue 2, pp 22-29.
- Arif, A. and Eqbal, S. (2016).** Mental health status of tribal school going adolescents: a study from rural community of Ranchi, Jharkhand. Telangana Journal of Psychiatry: 2(1):38-41.
- Chaplin, J.P. (1975).** Dictionary of Psychology (Rev. ed.), D.P., New York.

- Gore, F.M., Bloem, P.J., Patton, G.C., Ferguson, J., Joseph, V., Coffey, C., Sawyer, S.M., Mathers, C.D. (2011).** Global burden of disease in young people aged 10–24 years: a systematic analysis. *The Lancet*; 377(9783):2093-102.
- Jahoda, M. (1958).** Current concept of positive mental health. Basic book, New York.
- Kieling, C., Baker-Henningham, H., Belfer, M., Conti, G., Ertem, I., Omigbodun, O., Rohde, L.A., Srinath, S., Ulkuer, N. and Rahman, A. (2011).** Child and adolescent mental health worldwide: evidence for action. *Lancet*; 378(9801):1515-25.
- Strupp, H.H. and Hadley, S.W. (1977).** A tripartite model of health and therapeutic outcome. *American Psychologists*, Vol. 32, No. 3.
- Venu Gopal, D.V. and Ashok, A. (2012).** Prevalence of Emotional and Behavioral Problems among Tribal and Non-tribal Adolescents. *Journal of the Indian Academy of Applied Psychology*, 2012;38(1):63-67.



## A COMPARATIVE STUDY ON PHYSICAL FITNESS LEVEL AMONG URBAN AND RURAL STUDENTS OF KASHMIR

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### ABSTRACT

The present study is a comparative study on physical fitness level among urban and rural students of Kashmir. In this study total 60 subjects for the study in which 30 from urban and 30 rural players were randomly selected samples. The total physical fitness of rural and urban students of Kashmir and in sit ups on comparison of t-test was 3.4. While as the physical fitness of rural and urban students of Kashmir in standing broad jump on comparison of t-test were 0.04. While as the physical fitness of rural and urban students of Kashmir in speed on comparison of t-test were 4.07. The two t-test values are significant and one t-test value is insignificant at 0.04.

**Keywords:** Physical Fitness Test, Speed, Muscular Endurance, Power, Rural, Urban.

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## 1. INTRODUCTION

Education in India has been given a fillip after the attainment of independence in 1947. The ministry of education at the centre was reconstituted and separate into central as well as state ministry of education. Education has been made a state subject and the initiatives for educational development has been left to the resources of the respective states. Physical education plays an important role in the achievement of goals of education. Physical education is an essential aspect of general education in which physical activities are used as a means of education or modifying a person for wellness. Physical activities are educational tools in the hands of the teachers who aim at the education of the body and mind. Education of the whole man is the objective, which goes far beyond the attainment of my 'Physical Vigor' so that the individual may grow and develop fully and be, enabled to live the abundant life, now as a child and later as an adult. Physical education has distinct contribution to make towards the enrichment of general education and seeks to further the purpose of modern education namely the attainment of the finest kind of living.

Physical fitness is not being able to perform certain feats that show ones strength. It is the condition of your body as a whole .The physiological biochemical and mental state. When physically fit one can efficiently work, play, resist chronic disease and meets constant demands. Everyone has different level of complete physical fitness which once reached, rewards you with a richer and more enjoyable life. . Physical fitness is to human body what fine-tuning is to an engine. It enables us to perform up to our potential. Fitness can be described as condition that helps us for better look, Pleasant feel and do our best

## 2. METHODOLOGY

### 2.1. Sample

In this study total 60 subjects for the study in which 30 from urban and 30 rural players were randomly selected samples. The total physical fitness of rural and urban students of Kashmir were measured.

### 2.2 Test used

For assessment of the selected physical fitness test, researcher has adopted following tests:

Sr. No	Variables	Test
1.	Speed	100 Meters
2.	Muscular endurance.	Bend knee set ups test
3.	Power	Standing broad jump

### 2.3 Administration of test

#### 100-MTR SPRINT:

Every 100-Mtr sprinter must begin the race with his feet in the starting blocks. The official race starter will call the sprinters to their blocks and on command the runners will adopt a set position. The position requires the runners to have both feet in the blocks and adopt a position with the body weight on their hands. On the starter's gun all runners begin the race. There is a one official on starting line and other officials where every lane on ending line where they collect the timing of runners. And there is a one scorer on ending.

### **SIT-UPS**

The standing position of the test is back lying position with knees flexed, feet on floor, and heels between 12 to 18 inches from the buttocks. The arms are crossed on the chest with the hand on opposite shoulder. A partner holds the examinee the feet to keep them in contact with the testing surface. The examinee curls to a sitting position, maintain arm contact with chest. The chin should be tucked on the chest and should remain in the position until the completion of the sit ups. When the elbow touches the thighs the sit up is complete. The examinee curls back down on the floor until the mid back contacts the testing surface. Another sit up may be attempted. The examinee begins executing consecutive sit ups on the word "GO". Using the signal ready GO. At the end of 60 seconds the test is ended with the word stop. The score is the number of sit ups executed correctly during the time. Pausing between sit ups is permissible. The score is the number of sit ups executed correctly during 60 seconds. Incorrect execution includes failure to curl up. Pulling the arms away from the chest, failure to touch the thighs with the elbows and failure to touch the mid back to the testing surface in the down position, Devinder K Kansal 1996.

### **STANDING BROAD JUMP**

The standing broad jump test may be either conducted in an athletic field area or in a gymnasium. Ask the subject to stand in a standing position back to the line marked by the investigator with both legs together and both feet near to each other. Then with the swing of the hand take a jump so that you can cover a long distance. The distance covered by the subject in meter. The trials are given to the subject and best of it taken into consideration for scoring. K. Kansal 1996.

#### **2.4 Sampling Technique**

The researcher took simple random sampling technique as an appropriate tool for selecting the desired subjects of the study. In the present study 60 subjects for the study (30 from urban and 30 rural.) were selected from school level in Kashmir.

#### **2.5 Collection of data**

The investigator to go for maximization of systematic variance and explains to exercise the control over the unwanted variables and [min] gives an understanding to minimize error variables so as to ensure disciplined data that contribute to a sound generalization. While verifying research hypothesis, a properly designed research tells what to do and what not indicates the steps to be taken in sequential manner for collecting the empirical data [John W. Best and James V. Khan 2003]. Selecting a proper research design and justifying its relevance the present researcher further moved for its implication with a view to testing the hypothesis. Present investigation is an associational predicative study that considers the principals of basic research. The comparison of physical fitness status of 14 to 16 years boys students of rural and urban students of Kashmir.

#### **2.6 Statistical Technique:**

The present study utilized quantitative techniques that included descriptive statistics, such as means, standard deviations and t-ratio.

### **3. RESULTS**

The Rural students in sit ups having less mean (18.05) and S.D (1.38) as compared to the mean (25.0) and S.D (1.62) of the urban students. While as in standing broad jump the rural students having less mean (1.55) as compared to the mean (1.63) and S.D (0.13)

of the urban students. While as in speed put the rural students having meaner (19.04) and S.D (0.69) as compared to the mean (16.12) and S.D (0.33) of the urban students.

In case of "t" test the rural and urban students of Kashmir in sit ups having "t" test = 3.4, which is significant. While in case of standing broad jump, the t-tests of rural and urban students of Kashmir t-test is =0.045 which is insignificant. While as in speed put, the t-test of both groups is 4.07, which is significant.

**TABLE 1**  
**MEAN, STANDARD DEVIATION AND T-TEST OF BOTH THE GROUPS ON SIT-UPS**

RESPONDENTS	MEAN	SD	df	't' Value
RURAL. STUDENTS	18.05	1.38	58	3.4
URBAN. STUDENTS	25	1.62		

The calculated mean and S.D of 60 second Sit-Ups of Rural and Urban students obtained are 18.05 (1.38) and 25 (1.62) respectively. The calculated "t" value is 3.4 at 0.05 level of significance. The table value for 58 degree of freedom is 2.00. Hence the difference among the rural and urban students in their abdominal strength is found significant.

**TABLE 2**  
**MEAN, STANDARD DEVIATION AND T-TEST OF BOTH THE GROUPS ON STANDING BROAD JUMP**

RESPONDENTS	MEAN	SD	Df	't' Value
RURAL. STUDENTS	1.55	0.138	58	0.04
URBAN. STUDENTS	1.63	0.132		

The calculated mean and S.D of standing broad jump rural and urban students of Kashmir obtained are 1.55 (0.138) and 1.63 (0.132) respectively. The calculated "t" value is 0.04 at 0.05 level of significance. The table value for 48 degree of freedom is 2.00. Hence the difference among the rural and urban students of Kashmir in their thigh Muscle strength is found insignificant.

**TABLE 3**  
**MEAN, STANDARD DEVIATION AND T-TEST OF BOTH THE GROUPS ON SPEED**

VARIABLES	MEAN	SD	df	't' Value
RURAL. STUDENTS	19.04	0.69	58	4.07
URBAN. STUDENTS	16.12	0.33		

The calculated mean and S.D of speed Put of rural and urban students of Kashmir 19.04 (0.69) and 16.12 (0.33) respectively. The calculated "t" value is 4.07 at 0.05 level of significance. The table value for 58 degree of freedom is 2.00. Hence the difference among the rural and urban students of Kashmir is found significant.

#### 4. DISCUSSION

The rural students in sit ups having less mean (18.05) and S.D (1.38) as compared to the mean (25.0) and S.D (1.62) of the urban students. While as in standing broad jump the rural students having less mean (1.55) as compared to the mean (1.63) and SD (0.13) of the

urban students. While as in speed put the rural students having meaner (19.04) and SD (0.69) as compared to the mean (16.12) and S.D (0.33) of the urban students.

In case of "t" test the rural and urban students of Kashmir in sit ups having "t" test = 3.4, which is significant. While in case of standing broad jump, the t-tests of rural and urban students of Kashmir t-test is =0.045 which is insignificant. While as in speed put, the t-test of both groups is 4.07, which is significant.

Further discussion is made regarding hypothesis.

- 1 The sit ups performance is not the same in both rural and urban students of Kashmir. Which shows that they are not equal in their muscular endurance and strength.
- 2 The standing broad jump performance was the same in both regions of rural and urban students of Kashmir. Which shows that they are same in cardio vascular endurance.
- 3 The 100 m speed performance is not the same in both regions of rural and urban students of Kashmir, Which shows that they are not equal in speed performance

Hence it can be concluded that there is difference in the physical fitness level of both regions of students of same age group ins-pite of different culture environment geographical difference Now we can say that our hypothesis become correct that there would be significance level between rural and urban areas of Kashmir

## 5. CONCLUSIONS

From the statistical analysis of the result of this study, the following conclusion can be drawn.

1. The null hypothesis is that there was no significant difference in physical fitness between Rural and Urban students of Kashmir is rejected.
2. The first hypothesis is that there may be significant level of difference physical fitness of Rural and Urban students of Kashmir is accepted.
3. The second hypothesis is that the physical fitness of urban students of Kashmir in speed is more than rural students of Kashmir are accepted.
4. The third hypothesis is that the physical fitness of rural students of Kashmir in sit-ups is more than urban students of Kashmir is rejected.

## ACKNOWLEDGEMENT

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## REFERENCES

- Albarwani,S. (2009)** Effects of overweight and leisure-time activities on aerobic fitness in urban and rural adolescents Metabolic Syndrome and Related Disorders 7 (4), pp. 363-373
- Angela Lumpkin, (1986)** Physical Education - A Contemporary Inirodution(Saint Louis : Times Mirror/TVlosby College Publishing, p.231.
- Bunched ,(1999),** "Skill related fitness literature pate," ACSM , pp.345-351.
- Barraw, H, M and McGee R. (1982).** A Practical Approach to Measurement in Physical Education. Philadelphia: Lea and Febiger.
- Berger Richard A and Robert Paradis. (1969).** "Comparison of Physical Fitness Scores of white and black seventh grade boys of similar Socio -Economic Level" Research Quarterly for Exercise and Sports.

- Bilton L. E. (1965).** "Validation of a four item of fitness test and norms for high school boys in the state of LOWA". Completed Research in Helath. **Physical Education and Recreation. p. 37.**
- Bouchard and shepherd, et al,(1994),** "Relationship among physical activity, health related fitness and health are established," applied development psychology, p.36.
- Bucher and Wuest, Richard A. Berger and Rober L. Paradin (1969,** "Comparison of physical fitness Scores of white and Black 7th Grade Boys of similar Soclo-Economic Level," Research Quarterly, 40, No.4, p.666.
- Bucher, C. A. (1983).** Foundation of Physical Education and sports, (9<sup>th</sup> Edition). St. Louis Toronto: The Mosby Co..pp. 7.
- Burxnan Blanche K. (1960).** "A study of youth fitness of English grade Junior High School Girls of Mitchell as measured by AAHPER Youth fitness test" Research Quarterly for Exercise and Sports.



## A STUDY ON CARDIORESPIRATORY FITNESS OF COLLEGE FEMALE OF WEST BENGAL

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### ABSTRACT

**Objective:** The objective of this study was to compare cardio-respiratory fitness in terms of  $VO_{2max}$  between rural and urban college female of West Bengal. **Subjects:** Sixty (N=60) female college students were randomly chosen from a large population of which thirty ( $GR_U=30$ ) were chosen from urban area and rest thirty ( $GR_R=30$ ) students were chosen from rural areas of West Bengal. The subjects belonging from rural area were chosen from the Govt. Institute of Education for Women, Hastings House, Alipore, Kolkata-27. On the other hand the subjects belonging from rural areas were chosen from two colleges of Hoogly district of West Bengal. The age ranged between 18-25 years. **Variable Studied:** In this project only one variables was studied i.e. cardiovascular fitness (CVF) in terms of  $VO_{2max}$  and it was measured by Queen's College Step Test (QCST) **Statistical analysis:** To find out significant difference in CVF between  $GR_U$  and  $GR_R$  statistical t-test was used. The significance of means were tested at  $p<0.05$  level of confidence. For statistical calculations Excel Spread Sheet of windows version 7 will be used. **Results:** The results suggest that the rural female were significantly superior in  $VO_{2max}$  than the urban female. **Key words:** Cardiovascular fitness,  $VO_{2max}$ .

## 1. INTRODUCTION

Cardio respiratory fitness and body composition are associated with the risk of emergence of cardiovascular diseases. Accordingly, these factors as related to health have been the focus of researchers in the field of Health and Physical Education. The incidence of cardiovascular disease is statistically and physiologically related to obesity. For example, the obese individual has a mortality rate from cardiovascular disease is 2½ times greater than the individual with an average or below average body weight [Fox and Browers, (1989)].

Over the past four decades, there has been an increase in the prevalence of overweight and physical fitness deterioration in adult across all genders, age and racial/ethnic groups. It can cause many risk factors to health including coronary heart disease, forms of cancer, diabetes, hypertension, stroke, osteoarthritis respiratory problems etc. Low levels of physical activity and cardio respiratory fitness are both associated with higher risk of all causes and disease specific mortality [Thune et. al.(1998)].

Aerobic fitness is a very good indicator of cardio respiratory fitness/cardiovascular and exercise tolerance for everyday activities which are largely aerobic for the general population [Zuluaga, (1995)]. It is considered that VO<sub>2</sub> max or maximal aerobic capacity is only a single measure of the functional capacity of the oxygen system or cardio-respiratory system or the oxygen transport system [Koley, (2007)]. Research has indicated the importance of exercise in reducing the risk of cardiovascular diseases, through reduction of blood lipids, body fat, and blood pressure, improvement in myocardial function and as an independent risk factor [(Fletcher et al., 1990 and National Heart Foundation, 1991)]. Thus, the concept of fitness being defined as good condition or good health, tells us that, while we do not expect the general population to compete with athletes, an above average Vo<sub>2</sub> max score indicates a healthy level of cardio respiratory fitness and that an individual is fit to cope with the general demands of living [(Zuluaga, 1995)]. Civilization and industrialization make our life pleasant, jubilant and luxuriant. Indeed, automation and other technologies have contributed greatly to lessening physical activities at work place and home. The assessment of cardio respiratory fitness in children and adolescent has been growing in importance because several data link the VO<sub>2</sub> max with CVD risk factors [(Sallis, 1988 and Anderson, 1992)]. So, the purpose of the present study was to fulfill the lacuna of knowledge in these aspects in young adults especially in Indian context. Therefore, the aim of the present study was to compare the cardiorespiratory fitness in terms of VO<sub>2</sub>max between the rural and urban female of West Bengal.

## 2. MATERIALS AND METHODS

### 2.1. Sample

Sixty (N=60) female college students were randomly chosen from a large population of which thirty (30) was chosen from urban area and rest thirty students were chosen from rural areas of West Bengal. The subjects belonging from rural area were chosen from the Govt. Institute of Education for Women, Hastings House, Alipore, Kolkata-27. On the other hand the subjects belonging from rural areas were chosen from a rural college of Arambag subdivision of Hoogly district of West Bengal. The subjects were selected on the basis that they should have the history of living in their areas (Rural or Metropolitan) continuously for last 18 years without interruption for more than three month at a time. Students having experience of participation in competitive sports, regular exercise program and the

students of Physical education were excluded from the sample. That means only sedentary women were chosen as subjects for the present project. Students having history of cardiac disease and lung disease will also be excluded from sample. The study was approved by Institutional Ethical Committee.

## 2.2 Selection of Variables

In this project only one variables was studied i.e. cardiorespiratory fitness (CF) in terms of  $VO_2$ max and it was measured by Queen’s College Step Test (QCST)

## 2.3 Procedure

Height and Weight were measured by Anthropometric rod and Digital Weighing machine (Tanita™, Model: BC-554). To measure CF in terms  $VO_2$ max Queen’s College Step Test (QCST) was administered on all the selected subjects.

Cardiorespiratory fitness in terms of  $VO_2$ max was measured by Queen’s College Step Test (QCST). *Prediction of  $VO_2$  max:* In brief the step test was performed using a stool of 16.25 inches (or 41.30 cm) height. Stepping was done for a total duration of 3 minutes at the rate of 24 cycles per minute which was set by a metronome. After completion of the exercise, the subjects were asked to remain standing comfortably and the carotid pulse rate was measured from the fifth to the twentieth second of the recovery period. This 15 second pulse rate was converted into beats per minute (15 sec pulse rate x 4) and the value thus obtained was put in the following equation to predict  $VO_2$ max in ml/kg/min, as proposed by McArdle et al., 1986.

$$VO_2 \text{ max (ml/kg/min)} = 65.81 - (0.1847 \times \text{pulse rate in beats per min})$$

## 2.4 Statistical analysis

In the present study for the sake of analysis of data mean and standard deviation of the variables were calculated. To find out significant difference of mean in CVF between the rural & urban college women statistical t-test was used. The significance of means were tested at  $p < 0.05$  level of confidence. For statistical calculations Excel Spread Sheet of windows version 7 will be used.

## 3. RESULTS

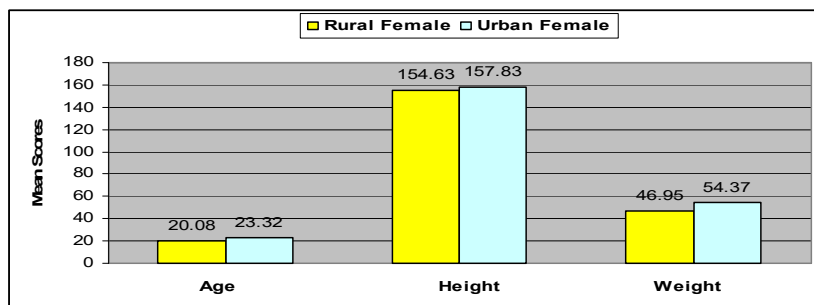
In Table-1 the mean and standard deviation of Age, Height and Weight of Rural and Urban college female students have been presented.

**TABLE 1**  
**DESCRIPTIVE STATISTICS OF DIFFERENT GROUPS OF SUBJECTS IN AGE, HEIGHT AND WEIGHT**

S.NO.	Groups	N	Age M±SD	Height M±SD	Weight M±SD
1	Rural Female	30	20.08±1.21	1.54±4.48	46.95±6.94
2	Urban Female	30	23..32±5.73	1.57±6.07	54.37±10.44
3	Total	60			

Thus **Table-1** shows that the number of subjects for **Rural Group** ( $GR_R$ ) was 30 and the mean age of the subjects was 20.08 years with a standard deviation  $\pm 1.21$ . The mean height was 1.54 m. with a standard deviation of  $\pm 4.48$ . The mean weight for the same age group was 46.95 kg with a standard deviation and range of  $\pm 6.94$ . For **Urban Group** ( $GR_U$ ) the number of subjects was 30 and the mean age of the subjects was 23.32 years with a standard deviation of  $\pm 5.73$ . The mean height was 1.57 m with a standard deviation of  $\pm 6.07$ . The mean weight for the same age group was 54.37 kg with a standard deviation of  $\pm 10.44$





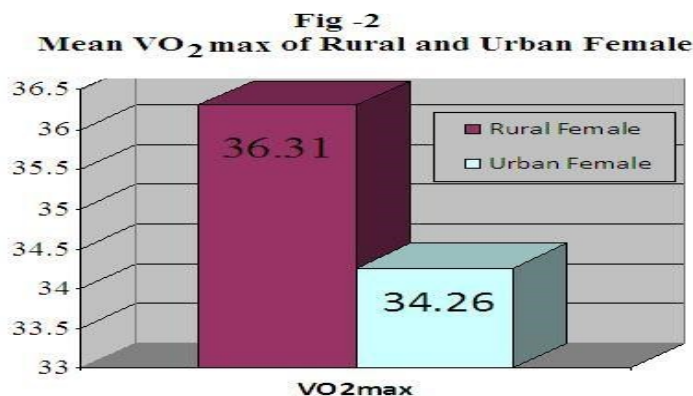
**TABLE 2**  
**MEAN, SD, MEAN DIFFERENCE, SE, T-VALUE OF VO<sub>2</sub> MAX OF RURAL AND URBAN COLLEGE STUDENTS.**

Students	Mean	SD	MD	$\sigma$ DM	t-ratio
Rural	36.31	2.84	2.05	0.66	3.10
Metropolitan	34.36	4.60			

From the Table -2 it was found that the mean  $\pm$  standard deviation of VO<sub>2</sub>max for Rural and Urban female was  $36.31 \pm 2.84$  and  $34.26 \pm 4.64$  respectively. From the Table -2 it was also found that the mean difference, standard error and t-value were 2.05, 0.66 and 3.10 respectively. It was also found that the difference in VO<sub>2</sub>max between rural and urban female was statistically significant. In Fig-2 the mean value of vo<sub>2</sub> max for rural and urban female was presented.

#### 4. DISCUSSION

The possible explanations for these results may be due to the fact that the food habits of the urban girls and rural girls are different. Urban girls usually take cold drinks, fast and junk foods regularly whereas rural girls take to their usual foods. That is why urban girls gains fat and becomes heavier than Rural girls. Again Rural girls in our country engaged in family works but urban girls were not too much engaged themselves in such works rather watch television programme, read magazine, work on computer which do not permit any physical activity. That was probably the cause behind getting such result. In respect of Cardio-respiratory endurance it was found that the urban girls were significantly inferior to the rural counter parts. That was because The Rural girls engage themselves in different family works, place and recreational activities whereas the metropolitan girls mostly reluctant to resort to physical activities rather they like to engage themselves in other activities. The effects of pollution may also be a factor of such type of results.



## 5. CONCLUSION

From The result of the present study it can be concluded that that there are significant difference in cardio-respiratory fitness between rural and urban female.

### **REFERENCES**

- Barrow, H.M. and McGee, R.M. (1979).** A Practical Measurement for Evaluation in Physical Education. Lea & Febiger, Philadelphia,
- Clarke, H. H. (1976).** Application of Measurement to Health and Physical Education. (5<sup>th</sup> Edition). New Jersey: Prentice-Hall Inc.,
- Donald K. M., (1978).** "*Measurement in Physical Education*" Philadelphia W.B. Saunders Company,
- Garrett, H. E., Woodworth, R. S. (1981)** **Statistics** in Psychology and Education (10<sup>th</sup> edition). Bombay: Vakils Feffer and Simons Private Ltd.
- Hockey R.V. (1993).** Physical Fitness The pathway to Healthful Living. (7<sup>th</sup> Edition). Boston: Mosby publication.
- Johnson, B. L. and Nelson, J. K. (1982).** Practical Measurements for Evaluation in Physical Education. (3<sup>rd</sup> Edition). Delhi: Surjeet Publication,
- Morehouse, C. A. and Stull, G. A. (1975).** Statistical Principles and procedure with Applications for Physical Education. Philadelphia: Lei & Febiger,
- Singh Ajmer, Dr.Bains, Dr. Gill and Dr. Brar (2008).** "Essential of Physical Education" 3<sup>rd</sup> Edition Kalyni publishers,



## ACHIEVEMENT MOTIVATION AND RISK-TAKING AMONG THE SPORTS STUDENTS AND NON-SPORTS STUDENTS

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### **ABSTRACT**

Background: There exists a stereotype among the general population that the sports students get involved in many risk-taking behaviours and also that such behaviours are high at their transition period from adolescence into the adulthood. We also fail to look at the other desirable effects of risk-taking and the effects of other variables like achievement motivation, which play a major role in risk-taking. Aim: To assess the level of achievement motivation among the college going sports-students and non-sports-students and the impact of their risk-taking behaviour. Method: 100 college going sports-students (50) and non-sports students (50) selected from an Arts & Science College using convenient sampling. Ray's Achievement Motivation Scale and Domain-Specific Risk-Taking Scale were chosen as a study measure. Results: There exists a significant relationship between the achievement motivation and risk-taking behaviour, significant difference between the sports-students and non-sports-students in ethical-risk-taking behaviour and gender differences among sports-students in terms of health risk-taking behaviour. Conclusion: Risk-taking behaviours are more predominant with those who aspire for greater success and a better development in their professional skills rather than academic skills and yet higher risk-taking without analysing consequences can be harmful and lead to negative events and effects.

**Keywords:** Risk-taking, Achievement motivation and Sports students

## 1. INTRODUCTION

Every university or a college has its own role in the field of sports with their own teams and compete with each other's. This plays a major role in establishing a platform for the students to exhibit their talents and develop their skills and abilities. This helps the students to reach their advancements in the field and utilise their potential. In India the field of sports psychology is a developing science and yet to establish a stronger ground. Psychological factors have a definite effect on the performance of the sportsmen.

Achievement Motivation is a specific concept based on situation that focuses on the task rather than a generic trait especially energies, direct and maintain sportsperson task of establishing new achievement in sports. **McClelland (1961) 18** argued and **Schwer R K and Yucelt U (1984) 17** confirmed that individuals with high achievement motivation tended to take moderate risks, while individuals with low levels of achievement showed fewer reservations towards risk-taking. It helps to determine a person's effort, aspiration and persistence when a person knows that someone else is evaluating the performance. People with higher motivation may find it as an opportunity for growth and don't give up easily. Achievement motivation in sports looks at how people strive to increase their personal best. People monitoring the performances of the sportsmen with higher achievement motivation should manage them with a balanced feedback. They want to know what they are doing right and wrong so that they can make changes for improvement, hence they can learn and become greater.

Risk can be referred to an uncertain event or state that involves danger or risk in order to achieve a goal, a certain amount of risk-taking is inevitable to achieve objectives. For instance, Stunt men, Bike racers and other types of "adrenaline boosters". Moreover, people at time exhibit or do certain activities that are feared by others. Such people love to doing those risky tasks just too even get a kick or adrenaline rush.

When a person gets to analyse the risks then they can act accordingly in order to equip themselves to tackle them based on their severity and degree of impact. This has to be a continuous and scheduled on regular basis to be effective. One has to create strategies to deal with the risks. Risk may be described as probability of adverse effects. The risk may not only be of physical damage but also can be of emotional, social adversities. Such risky behaviours produce certain warning signals after which they will stop performing that act. Entrepreneur's achievement motivation has significantly and positively related to performance regardless of generosity level in the environment. However, risk-taking tendency is only negatively associated with performance at low generosity level (**Jintong Tang and Zhi Tang 2007). 16** Taking this as a lead that there have been very few studies conducted in India with regard to the sports persons. And also, that the factor risk-taking behaviours have not been explored into and therefore this study was initiated. There exists a stereotype among the general population that the sports students get involved in many risk-taking behaviours and also that such behaviours are high at their transition period from adolescence into the adulthood. Hence to explore in this specific context we made this study.

## 2. METHODOLOGY

### 2.1 Sample:

A sample of 100 college going sports-students and non-sports students from a well reputed institution were taken as the sample group. The sample was selected using the

convenient sampling method. Students with any health problems that interfered in the process of the study were excluded. Sports-students refers to the students who are in the 'main stream' of sports as full-time players must be associated to a college team, attending competitions and sports events for continuously for at least 3-year period of time in a particular recognized field sport event. Non-sports students refer to the other students who may also be playing games as of in recreation or hobby or even in their leisure time.

## **2.2 Tools**

### **2.2.1 Socio Demographic Data Sheet**

It is used to collect the name, age, gender, socio-economic status, marital status, and education, qualification and domicile.

### **2.2.2 Ray's Achievement Motivation Scale (RAMS) 14**

The scale was developed by John Ray in 1979. It consists of 14 statements in question form demanding information for each in a 3-pointer scale. It has a reliability of .70 and a validity of .77.

### **2.2.3 Domain-Specific Risk-Taking Scale (DOSPERT) 15**

The scale was developed by Blais & Weber in 2006. This is a revised edition of the original DOSPERT Scale (2002). It measures risk-taking in five different domains namely financial decisions, health/safety, recreational, ethical, and social decisions. It has totally 30 items with each statement having 7 responses ranging from 'Not at all risky' to 'Extremely risky'. Reliabilities for the dimensions of Financial, Social, Health, Ethics, and Recreational subscales are 0.44, 0.58, 0.75, 0.72, and 0.80 respectively.

## **2.3 Aim**

To assess the level of achievement motivation among the college going sports-students and non-sports-students and the impact on their risk-taking behavior.

## **2.4 Objectives:**

1. To know whether there is any significant relationship between achievement motivation and the risk-taking behavior among the sports-students and non-sports students. 2. To assess the levels of achievement motivation and risk-taking behavior of the sports students and the non-sports students. 3. To find the difference in the levels of achievement motivation and risk-taking behavior between the sports students and the non-sports students. 4. To find the difference in the levels of achievement motivation and risk-taking behavior between the male and female sports-students.

## **2.5 Hypotheses**

- There is a significant relationship between the achievement motivation and risk-taking behavior.
- There is a significant gender difference between the male and female sports students in their levels of achievement motivation levels.
- There is a significant difference between the sports-students and non-sports students in their levels of achievement motivation.
- There is a significant gender difference between the male and female sports students in terms of risk-taking behavior.
- There is a significant difference between the sports-students and non-sports students in terms of risk-taking behavior.

## **2.6 Procedure:**

After getting informed consent from the subjects, they were given a socio-demographic data sheet and it was followed by the administration of the Ray's

Achievement Motivation Scale and the Domain specific risk-taking scale was also administered. These tests were administered individually for every sample.

### 3. RESULTS AND DISCUSSION

Mean, Standard deviation, t-test and correlation analysis were used for data analysis through SPSS 24.

**TABLE 1**  
**SHOWS THE FREQUENCIES AND PERCENTAGES OF THE DEMOGRAPHIC VARIABLES**  
**OF THE SPORTS AND NON-SPORTS STUDENTS**

Variables	Category	Frequency	Percentage (%)
Age	17-18	35	35 %
	19-20	42	42 %
	21-22	23	23 %
Gender	Male	50	50 %
	Female	50	50 %
Socio-Economic Status	Upper	20	20 %
	Middle	60	60 %
	Lower	20	20 %
Family type	Nuclear	78	78 %
	Joint	22	22 %
	Single parenting	0	0 %
No. of siblings	0	10	10 %
	1	30	30 %
	2	42	42 %
	3	18	18 %
Domicile	Urban	90	90 %
	Rural	10	10 %
Player	Player	50	50 %
	Non-Player	50	50 %

Table 1 shows the frequencies and percentages of the demographic variables of the sports and non-sports students. From the table no-1 it is seen that the study was conducted with a sample group consisting of 100 subjects (50 males, 50 females), 35 (35%) subjects between 17-18 years of age and 42 (42%) subjects between 21-22 years of age group. 10 (10%) subjects had no siblings and 30 (30%) had 1 sibling, 42 (42%) subjects had 2 siblings and others (18%) having 3 siblings. In the sample group 78 (78%) of the subjects are from nuclear type of family, 22 (22%) are from joint family, and none are of single parenting. It also shows that 9 (9%) of the subjects are from upper class, 24 (24%) are from middle class family, and 10 (10%) are from lower class family. It shows that 90 (90%) of the samples are from urban society and 10 (10%) are from rural society. Among the 100 samples 50 (50%) are sports students and the other 50 (50%) are non-sports students. **Stanford, Greve and Boudreux et al (1996) 13** conducted a study on Impulsiveness and risk-taking behaviour: comparison on high-school and college students using the Barratt Impulsiveness scale was undertaken in an attempt to determine the relationship of impulsiveness to risk-taking behaviours such as aggression, drug abuse, drunk driving and not wearing seat belts. It was found that high impulses are involved in risk-taking behaviour at a higher rate than low impulsive subjects. These findings suggest that high impulsive adolescent and young adults are at considerable risk of personal injury and present a potential source of injury to others. **Schilling & Hayashi (2001) 12** studied on

Achievement motivation among high school basketball students and cross-country athletes resulted that Athletes defined positive and negative experiences through task, ego and socially oriented personal incentives as well as sense of self and perceived options components. Socially-oriented personal incentives and sense of self components were more prevalent among basketball athletes.

**TABLE 2**  
**SHOWS THE MEAN, STANDARD DEVIATION AND T-TEST OF DIMENSIONS OF RISK-TAKING BEHAVIOUR AMONG THE SPORTS AND NON-SPORTS STUDENTS IN TERMS OF THEIR GENDER (N = 50).**

		Gender	Mean $\pm$ S. D	t-ratio	Sig.	
<b>Achievement Motivation</b>		Male	28.96 $\pm$ 3.516	<b>2.160</b>	<b>.033</b>	
		Female	30.56 $\pm$ 3.882			
<b>DIMENSIONS OF RISK-TAKING BEHAVIOUR</b>	Ethical	Male	19.80 $\pm$ 5.206	<b>3.286</b>	<b>.001</b>	
		Female	15.86 $\pm$ 6.691			
	Financial	Male	21.44 $\pm$ 6.494	<b>2.309</b>	<b>.023</b>	
		Female	18.64 $\pm$ 5.598			
	Health/ safety	Male	22.46 $\pm$ 6.450	<b>4.104</b>	<b>.000</b>	
		Female	17.20 $\pm$ 6.366			
	Recreational	Male	26.38 $\pm$ 7.334	<b>1.975</b>	<b>.051</b>	
		Female	23.78 $\pm$ 5.730			
	Social	Male	25.60 $\pm$ 6.955	<b>1.225</b>	<b>.224</b>	
		Female	23.94 $\pm$ 6.594			
	<b>Risk-taking Behaviour</b>		Male	115.68 $\pm$ 18.838	<b>4.420</b>	<b>.000</b>
			Female	99.42 $\pm$ 17.938		

Table 2 shows the Mean, Standard Deviation and t-test of dimensions of risk-taking behaviour among the sports and non-sports students in terms of their gender. From the table it is seen that, i) there exists a significant difference in the achievement motivation among the males and females with a value of  $t = -2.160$  with significance of .033, ii) there exists a significant difference in the ethical risk-taking behaviour among the males and females with a value of  $t = 3.286$  with significance of .001, iii) there exists a significant difference in the financial risk-taking behaviour among the males and females with a value of  $t = 2.309$  with significance of .023, iv) there exists a significant difference in the health/safety risk-taking behaviour among the males and females with a value of  $t = 4.104$  with significance of .000, v) there exists a significant difference in the recreational risk-taking behaviour among the males and females with a value of  $t = 1.975$  with significance of .051, vi) there exists a significant difference in the overall risk-taking behaviour among the males and females with a value of  $t = 4.420$  with significance of .000. **Kamlesh M L (1987) 11** studied the level of sports achievement motivation in the inter-collegiate female players belonging to various games. It was concluded that the intercollegiate female players have a moderate level of sports achievement motivation. No inter sports difference on the level of achievement motivation were reported. **Byrnes, Miller, David, Schafer and William (1999) 10** conducted a meta-analysis on gender difference in risk-taking resulted that there is greater risk-taking in male participants and certain topics (e.g., intellectual risk-taking and physical skills) produced larger gender difference than others (e.g., smoking). **Maheshwari and Aruna (2016) 9** studied on gender difference and achievement motivation among adolescent school students reported that there is significant difference between the gender differences of the respondents with regard to their achievement motivation.

**TABLE 3**  
**SHOWS THE MEAN, STANDARD DEVIATION AND T-TEST OF RISK-TAKING BEHAVIOUR**  
**AMONG THE SPORTS AND NON-SPORTS STUDENTS (N = 50).**

		<b>Player/ Non-player</b>	<b>Mean ± SD</b>	<b>t-ratio</b>	<b>Sig.</b>
<b>RISK-TAKING BEHAVIOUR</b>	Ethical	Non-Player	16.20 ± 6.503	2.673	.009
		Player	19.46 ± 5.665		

Table 3 shows the Mean, Standard Deviation and t-test of risk-taking behaviour among the sports and non-sports students in terms of their nature i.e., either being a player or non-player. From the table it is seen that, i) there exists a significant difference in the ethical risk-taking behaviour among the sports and non-sports students with a value of  $t = -2.673$  with significance of .009. There exists no other significant difference among the sports and non-sports students in achievement motivation and risk-taking behaviours in terms of their nature - either being a player or non-player. **Gorsuch (1969) 1** conducted a study on 30 non-athletes, 30 team sports athletes and 30 individual sports athletes to determine their level of achievement motivation and administered to the, McClelland Thematic Apperception Test. Results of the study indicated the differences among the non-achievement response scores of the 3 groups. **Sangwan (1989) 2** administered Bhargawa's achievement motivation test to 603 sprinters. The result revealed that high proficiency sprinters scored significantly higher on achievement motivation as compared to low proficiency and middle proficiency sprinters. **Kavussanu and McCaukey (1995) 3** reported that elite level athletes had higher level of achievement motivation than non-elite athletes. A study by **Garry et al. (2000) 4** found that sports participants are more likely to involve in risk-taking behaviours like carrying a weapon, being in physical fight, use of alcohol and experimentation with cigarettes and chewing tobacco when compared with non-sports participants. **Patel et al., (2000) 5** made a study which shows that students participate in sports for a variety of reasons. Some seem to enjoy participating in what some might consider very high risk or "extreme" sport activities. For some adolescents' risk-taking becomes pervasive and can be detrimental to normal health and development. The majority of students will do well in the context of athletics, and the many positive benefits of regular physical activity and sports participation should be appropriately emphasised. However, a subset of adolescents may be at greater risk for adverse consequences. **Tod & Hodge (2001) 6** found that an individual's level of moral reasoning is influenced by his achievement motivation in sport and a combination of task and ego goal orientations tended to use more mature levels of moral reasoning. **Thakur and Mohan (2008) 7** assessed the personality traits, anxiety and achievement motivation level of volley ball players and non-sportsmen and reported that there were no significant differences in achievement motivation between higher level performance groups and lower level performance groups whereas achievement motivation level of high-performance groups was better than non-sportsmen. **Bovard (2008) 8** documented that some of the researchers suggest that athletic participation is associated with increased risk behaviour in males and athletes have traditionally been considered greater risk takers than their peers. The study on risk behaviours in high school and college sport said that risk behaviours in both athletes and non-athletes are alike.



**Table 4**  
**SHOWS THE MEAN, STANDARD DEVIATION AND T-TEST OF DOMAIN-SPECIFIC RISK-TAKING (DOSPRT) AMONG THE SPORTS STUDENTS IN TERMS OF THEIR GENDER (N=25).**

		Gender	Mean	Std. Deviation	t	Sig.
DOSPRT	Health/Safety	Male	21.76	5.974	2.213	.032
		Female	17.88	6.418		

Table 4 shows the Mean, Standard Deviation and t-test of domain-specific risk-taking among the sports students in terms of their gender. From the table it is seen that, i) there exists a significant difference in the health/safety risk-taking behaviour among the male and female sports students with a value of  $t = 2.213$  with significance of .032. There exists no other significant difference in the achievement motivation and risk-taking behaviours among the male and female sports students.

**TABLE 5**  
**SHOWS THE RELATIONSHIP BETWEEN ACHIEVEMENT MOTIVATION AND THE RISK-TAKING BEHAVIOUR.**

	RAMS	ETHICAL	FINANCIAL	HEALTH/ SAFETY	RECERATIONAL	SOCIAL	DOSPRT
ACHIEVEMENT MOTIVATION	1	-.212*	-.104	-.134	-.114	.035	-.171*
ETHICAL		1	.405**	.599**	.104	.018*	.686
FINANCIAL			1	.444**	.184	.004	.652**
HEALTH/ SAFETY				1	.109	.118	.746**
RECERATIONAL					1	.187	.523
SOCIAL						1	.449
RISK-TAKING BEHAVIOUR							1**

\*. Correlation is significant at the 0.05 level. \*\*. Correlation is significant at the 0.01 level.

Table 5 shows the relationship between achievement motivation and the risk-taking behaviour. From the correlation analysis, i) there exists a significant relationship between the achievement motivation and overall risk-taking behaviour with a negative correlation of  $-.171^*$  at a significance level of 0.05, ii) there exists a significant relationship between the achievement motivation and ethical risk-taking behaviour with a negative correlation of  $-.212^*$  at a significance level of 0.05, iii) there exists a significant relationship between the ethical risk-taking behaviour and financial risk-taking behaviour with a positive correlation of  $.405^{**}$  at a significance level of 0.01, iv) there exists a significant relationship between the ethical risk-taking behaviour and health/safety risk-taking behaviour with a positive correlation of  $.599^{**}$  at a significance level of 0.01, v) there exists a significant relationship between the ethical risk-taking behaviour and social risk-taking behaviour with a positive correlation of  $.018^*$  at a significance level of 0.05, vi) there exists a significant relationship between the financial risk-taking behaviour and health/safety risk-taking behaviour with a positive correlation of  $.444^{**}$  at a significance level of 0.01, vii) there exists a significant

relationship between the financial risk-taking behaviour and overall risk-taking behaviour with a positive correlation of .652\*\* at a significance level of 0.01, vii) there exists a significant relationship between the financial risk-taking behaviour and overall risk-taking behaviour with a positive correlation of .746\*\* at a significance level of 0.01.

#### 4. CONCLUSION

There exists a significant relationship between the achievement motivation and risk-taking behavior, gender difference between the male and female sports-students in terms of risk-taking behavior and sports-students and non-sports-students in terms of risk-taking behavior. There exists no significant gender difference between the male and female sports-students in their levels of achievement motivation levels.

The present study has limitations that, the small sample size of the study, restricted to a small geographical area and only conducted with few variables. The research needs to be conducted for a larger group of population and sample groups so as to achieve more accurate values and results. The study can be done with the inclusion of various other factors that could affect the achievement motivation and the risk-taking behaviours. On analysis the results with a larger group it can be used to plan and provide interventions to those who have lower level of achievement motivation and also to frame sessions to educate them on the consequences of taking higher risks in their life situations.

#### REFERENCES

- Atkinson, J. W., & Feather, N. T. (Eds) (1966).** A theory of achievement motivation. London. Wiley.
- Blais, A. R., & Weber, E. U. (2006).** A Domain-Specific Risk-Taking (DOSPERT) scale for adult populations. *Judgment and Decision Making*.
- Bovard, R. S. (2008).** Risk behaviors in high school and college sport. *Current sports medicine reports*, 7(6), 359-366.
- Byrnes, J. P., Miller, D. C., & Schafer, W. D. (1999).** Gender differences in risk taking: a meta-analysis. *Psychological bulletin*, 125(3), 367.
- Maheswari, K. K., & Aruna, M. (2016).** Gender difference and achievement motivation among adolescent school students. *International Journal of Applied Research*, 2(1), 149-152.
- Garry, J. P., & Morrissey, S. L. (2000).** Team sports participation and risk-taking behaviors among a biracial middle school population. *Clinical journal of sport medicine*, 10(3), 185-190.
- Gorsuch Harvey R. (1969).** Competitive athletes and the achievement motive as measured by a projective test. *Completed research in health, physical education and recreation* 11 : 179.
- Jintong Tang, Zhi Tang (2007).** The Relationship of achievement motivation and risk-taking propensity to new venture performance: A test of the moderating effect of entrepreneurial munifence. *Int. J. Entrepreneurship and small business*. Vol. 4, No. 4, 2007.
- Schwer, R. K., & Yucelt, U. (1984).** A study of risk-taking propensities among small business entrepreneurs and managers: An empirical evaluation. *American Journal of Small Business*, 8(3), 31-40.
- Kamlesh, M. L. (1987).** Inter collegiate female players on the anvil of sports achievement motivation test. *NIS Scientific Journal*, 10, 27-29.
- Kavassanu M, McCauley E (1995).** Exercise and optimism: are highly active individuals more optimistic, *Journal of Sport Exercise Psychology*.

- Stanford, M. S., Greve, K. W., Boudreaux, J. K., Mathias, C. W., & Brumbelow, J. L. (1996).** Impulsiveness and risk-taking behavior: Comparison of high-school and college students using the Barratt Impulsiveness Scale. *Personality and individual differences*, 21(6), 1073-1075.
- McClelland, D. C. (1961).** *The Achieving Society*. Princeton, NJ: Van Nostrand.
- Patel, D. R., & Luckstead, E. F. (2000).** Sport participation, risk taking, and health risk behaviors. *Adolescent medicine (Philadelphia, Pa.)*, 11(1), 141-155.
- Ray, J. J. (1979).** A quick measure of achievement motivation—validated in Australia and reliable in Britain and South Africa. *Australian Psychologist*, 14(3), 337-344.
- Sangwan, R.K. (1989).** Achievement motivation of high and low proficiency sprinters. *Proceeding of fourth national conference of sports psychology*.
- Schilling, T. A., & Hayashi, C. T. (2001).** Achievement motivation among high school basketball and cross-country athletes: A personal investment perspective. *Journal of Applied Sport Psychology*, 13(1), 103-128.
- Thakur, B. S., & Mohan, L. (2008).** Personality traits, anxiety and achievement motivation level of volleyball players and non-sportsmen. *Journal of Sports and Sports sciences*, 31(4), 23-29.
- Tod, D., & Hodge, K. (2001).** Moral reasoning and achievement motivation in sport: A qualitative inquiry. *Journal of sport behaviour*, 24(3), 307-326.



## EFFECT OF REPETITIVE AND VARIABLE TRAINING ON AGILITY IN AMATEUR FOOTBALL PLAYERS

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### **ABSTRACT**

Background: Agility is composed of perceptual and decision making factors, as well as change of direction components. It is one of the main determinants of performance in soccer. Literature discusses various physiological pathways involved in variable practice and block practice for learning of a motor task. Thus the aim of the study was to study the effect of variable training v/s repetitive training to improve agility in football players. Method: 40 amateur footballers (18-35 years) without any lower limb injuries were included. Players were assessed for agility by Modified Illinois test (MICODT) and were randomly divided into 2 groups; repetitive(n=20) & variable(n=20). The groups were subjected to the protocols for 6 weeks, thrice a week. The repetitive group was subjected to 4 drills in the same order for all 18 sessions. The variable group was subjected to the 4 drills in a random order at each session. After 6 weeks, the 40 players (20 males,20 females) were re-assessed for their agility by MICODT. Result: Data analysis showed statistical significance in agility of the variable group; pre training (17.684±0.768) and post training (16.845±0.736) with p value 0.0013 but no statistical significance in agility in the repetitive group; pre training (17.66±1.063) and post training (17.457±1.363) with p value 0.5918. There was no statistical significance seen in agility between repetitive training (17.457±1.363) and variable training (16.845±0.736) groups with p value 0.855. Conclusion: Variable training group took lesser time to complete the agility test than repetitive training. However, it was not statistically significant

**Keywords:** Variable training, Repetitive training, Agility, Amateur footballers.

## 1. INTRODUCTION

Football is a dynamic sport which demands exceptional physical performance in the form of agility, endurance, flexibility, strength and mental acuity on the part of its players. During an on-going football game, players are expected to perform repeated bouts of low-level activity such as walking, jogging or cruising in conjunction with high-intensity actions such as sprinting, jumping and directional changes (Goral, 2015). The ability to sprint, accelerate and decelerate alongside change of direction is commonly known as agility. Agility is composed of perceptual and decision making factors, as well as change of direction (COD) components and is a very essential skill required for football (Warren & David, 2010). Football is played at various levels all around the world. Amateur players are the ones who play without any remuneration while professional players are those who receive a payment for playing the sport (Laskowski, 2019). Training of the skills has been broadly classified into Repetitive (Blocked Practice) training and variable (Random practice) training. Repetitive training refers to when a learner performs a skill over and over, with repetition being the key and variable training refers practice refers to the use of a training schedule that includes frequent changes of task so that the performer is constantly confronting novel instance of the to-be-learned information. The present study aimed to study the effect of variable and repetitive training on agility.

## 2. METHODOLOGY

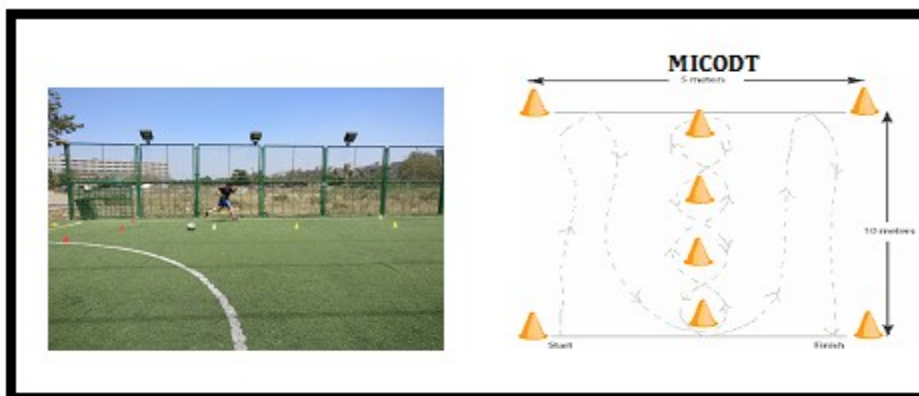
The research was conducted at the St. Andrews Turf Park. Permission of the departmental review board was taken before beginning the study.

### 2.1 Sample

The 40 subjects (Male=20, Females=20) included in the study were amateur football players (young adults 18-35 years). Subject were randomly divided into 2 groups; Repetitive (n=20) & Variable (n=20). The participants not included in the study were players with any neurological, cardiovascular, musculoskeletal, cognitive disorders and any players with lower limb injuries in the last 6 months.

### 2.2 Tool

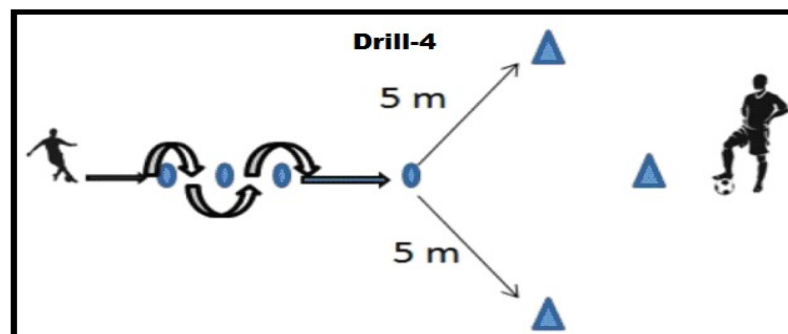
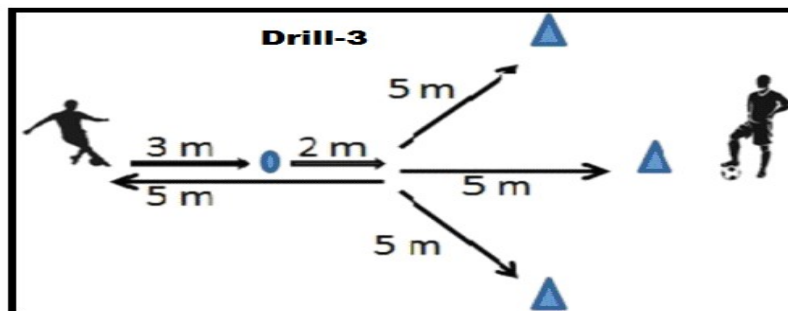
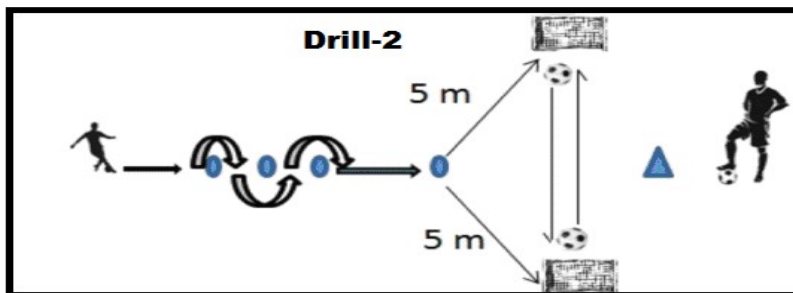
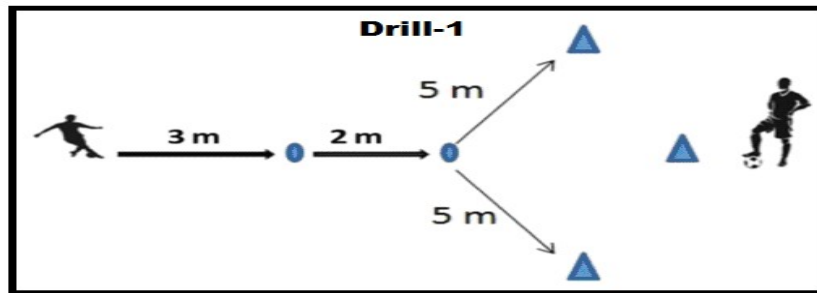
The Modified Illinois change of direction test (MICODT) was performed by all the players.



### 2.3 Training Protocol

A written consent was taken from all the participants. The groups were then subjected to the protocols for six weeks, three times in a week. The repetitive group was subjected to the 4 drills in the same order for all the 18 sessions. The variable group was

subjected to the 4 drills in a random order at each session. Thus, at the end of six weeks, both groups football players were again assessed for their agility by the MICODT. The following drills were performed in the same order:



The four drills were performed in the following random order in each session:

- 1-2-3-4
- 1-3-4-2
- 1-4-3-2
- 1-4-2-3
- 2-1-3-4
- 2-3-1-4
- 2-4-1-3
- 2-4-3-1
- 3-1-2-4
- 3-2-4-1
- 3-4-1-2
- 3-4-2-1
- 4-3-2-1
- 4-2-1-3
- 4-1-3-2
- 4-1-2-3
- 3-1-4-2
- 2-3-4-1

### 3. RESULTS

Data was analyzed using graph pad instant version 3. Study population (N=40) had a mean age of (19.6±1.292). Change in agility test performance was statistically significant in the variable group ; pre training (17.684±0.768) and post training (16.845±0.736) with p value 0.0013 but not statistically significant in the repetitive group ; pre training (17.66±1.063) and post training (17.457±1.363) with p value 0.5918. (Table 1) There was no statistical significance seen in post repetitive training (17.457±1.363) and post variable training (16.845±0.736) with p value 0.855. (Table 2)

**TABLE 1**  
**AGILITY PRE AND POST REPETITIVE AND VARIABLE TRAINING**

Variable	Pre Training M±SD	Post Training M±SD	Statistical Test	p Value
Repetitive group	17.66±1.063	17.457±1.363	Paired T Test	0.5918
Variable group	17.684±0.768	16.845±0.736	Paired T Test	0.0013

**TABLE 2**  
**COMPARISON BETWEEN REPETITIVE AND VARIABLE TRAINING**

Variable	Post Repetitive Training	Post Variable Training	Statistical Analysis	p Value
Agility (Mean ± SD)	17.457±1.363	16.845±0.736	Unpaired T Test	0.0855

### 4. DISCUSSION

Agility is an important skill in football requiring change in direction, quick decisions, the anticipated force required for the pass and strike. It is a long term learning skill, and the unstable environment attributes of the sport makes it easier to train the skill with variable training.

Variable training expands the experience of sensory motor learning by linking sensory perceptual learning, sensory associative learning and motor learning. Sensory perceptual learning establishes the effective sensory stimuli which are represented in the sensory motor cortex. Sensory associative learning links the sensory stimuli and the existing motor patterns which bring about the desired movement. Motor skill learning

leads to the production of a novel motor movement with the help of practice(**Goral,2015 ; Williams and Hodges, 2005**).

Thus, these three motor learning linkages help to improve long term retention of the skill, helps in better and quicker transitions of movements in an unstable environment which holds true for football as a sport because the play changes every minute & performing more than one task which is again a high demand in football. All of these lead to a better experience of sensory motor learning.

Repetitive training helps in motor skill learning merely by practice and without any sensory and perceptual environment which improves on the spot learning. The skill is explored thoroughly followed by selection of a few significant skills and finally the skill is refined by practice and learnt (**Goral,2015 ; Williams and Hodges, 2005**). Author suggests that a similar study should be done with a larger sample size for better understanding of clinical relevance and statistical significance.

## **5. CONCLUSION**

Variable training group took lesser time to complete the agility test than repetitive training group. However, it was not statistically significant.

## **6. PRACTICAL APPLICATION**

Variable training can be used to train players of dynamic sports, football being one of them. As literature suggests, variable training is better as compared to repetitive training because it helps in better retention of skills, performing more than one task during the sport and performing efficiently in unstable environments which is attributed to the involvement of sensory and perceptual inputs.

## **REFERENCES**

- Young, Warren & Rath, David. (2010).** Enhancing Foot Velocity in Football Kicking: The Role of Strength Training. Journal of strength and conditioning research / National Strength & Conditioning Association. The Journal of Strength and Conditioning Research 25(2):561-6, DOI: 10.1519/JSC.0b013e3181bf42eb
- Jakub Laskowski (2019)** Solidarity compensation framework in football revisited. The International Sports Law Journal. 18, 3(4): 150–184
- Kemal Goral (2015)** Examination of agility performances of soccer players according to their playing positions. Contemporary Sports Issues vol. 20, 2015, DOI: 10.17682/sportjournal/2015.004 <http://thesportjournal.org>
- Williams AM1, Hodges NJ (2005)** Practice, instruction and skill acquisition in soccer: challenging tradition. J Sports Sci;23(6):637-50.





## COMPARATIVE ANALYSIS OF FEAR OF FAILURE AMONG NATIONAL LEVEL BOYS MALLAKHAMB PLAYERS IN DIFFERENT COMPETITIVE AGE GROUPS

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### ABSTRACT

Fear of failure is an achievement motive disposition that can be changed through certain achievement experiences. The purpose of present study was to analyse and investigate the the fear of failure among national level boys Mallakhamb players in different competitive age groups. The sample consisted of one hundred and thirty two national level boys Mallakhamb players of different competitive groups. The fear of failure questionnaire (FOFQ) is a sport-specific scale consisting of 48 items which was constructed by Shukla (2015) was used. To assess the fear of failure of boys and girls on six dimensions of National level boys and girls in different competitive age groups, mean, standard deviation, F-ratio were computed. To check the obtained F-ratio, the level of significance was set at .05 level. The results of the investigation revealed that Indian boys Mallakhamb players in different competitive age group levels, as whole exhibited different fear of failure on coping strategies dimension of FOF. But they had similar FOF on goal setting, self adequacy, uncertain future, self control, and self evaluation dimensions.

**Keywords:** Fear of failure, Indian, Mallakhamb, players, Boys,

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## 1. INTRODUCTION

Fear of failure has been related to several maladaptive consequences on athletes, such as burnout, drop-out, and high levels of worry, stress and anxiety. This study aimed to discover the effects of fear of failure in sport contexts. An application of structural equation modeling was made on Portuguese athletes. A multi-group confirmatory factor analysis was conducted and significant differences were detected. Female athletes presented more fear of shame and embarrassment, fear of devaluating one's self estimate, and less fear of having an uncertain future, than male athletes. Fear of upsetting important others and fear of important others losing interest are more prevalent in team sports. Adolescent athletes presented more fear of important others losing interest than preadolescents. The results of this research provided evidence that fear of failure is appraised differently by athletes, concerning their gender, type of sport, and age (Correia, et. al., 2017).

The fear of failure is a real fear in every human being, despite what some of the outwardly brave ones will tell you. Have you ever thought to yourself, "what if I set a target and I don't reach it"?

Team sport athletes would have higher levels of fear of failure than individual sport athletes since they reported higher levels of fear of losing social influence. Team sport athletes were also significantly more likely to experience fear of losing social influence when failing in sport (Massey, 2007).

Sancho and Hewrtt (1990) reported the questioning fear of success. Some have questioned whether fear of success can be differentiated from fear of failure.. Fear of success scores predicted the negative reaction to failure but not to success.

Fear of failure as the dispositional predisposition to appraise threat, to the achievement of personally meaningful goals, when one fails. Individuals with a higher fear of failure have learnt to associate failure with aversive consequences and typically perceive failure in evaluative situations as threatening. They also believe that aversive consequences will occur following a failure (Conroy, Willow, Jand Metzler, 2002).

Fear of failure in the sport domain among young elite athletes, and to explore their perceptions of the consequences of failure. He revealed that the most commonly perceived aversive consequences of failure were diminished perception of self, no sense of achievement, and the emotional cost of failure (Sagar, Lavalley & Spray, (2007).

Fear of experiencing shame and embarrassment is central in the perfectionism-fear of failure relationship and that perfectionist concern about mistakes and perceived coach pressure are aspects of perfectionism that predict fear of experiencing shame and embarrassment and negative affect after failure (Sagar, & Stoeber, 2009).

Fear of failure and sport experience may be important considerations when trying to understand antisocial behaviour in student athletes in education and sport; moreover, the potential effect of overall fear of failure and of sport experience on this frequency does not differ by sex.( Sagar, Boardley and Kavussanu, 2011) .

Fear of failure decreased significantly from baseline to end of intervention among goal setting group, but increased again from end of intervention to follow-up. This indicates that fear of failure is an achievement motive disposition that can be changed through certain achievement experiences ( Wikman, et.al., 2014 & Michael et. al., 2014) ).

The purpose of present study was to analyse and investigate the the fear of failure among national level boys Mallakhamb players in different competitive age groups.

## 2. METHODOLOGY

### 2.1 Selection of Subjects

The sample consisted of one hundred and thirty two national level . (U/12 Years =41), (U/14 years=34), (U/18 years=34) and (Above 18 years=23). boys Mallakhamb players of different competitive groups i.e. Mini , Sub-junior, Junior and Senior groups who participated in 28<sup>th</sup> mini, 29<sup>th</sup> sub-junior, 30<sup>th</sup> junior and 33<sup>rd</sup> senior national Mallakhamb Championships held at Ujjain in the year February, 2017. Means and Standard deviations of age of Boys in mini, sub-junior, junior and senior age categories were 10.95±1.20, 13.41±0.50, 16.50 ±0.99, 21.52 ±2.41

### 2.2 Instrumentation

The fear of failure questionnaire (FOFQ) is a sport-specific scale consisting of 48 items which was constructed by Shukla (2015). It is a multidimensional inventory that measures the psychological characteristics of athletes on six subscales; Goal Setting, Self Control, Self Adequacy, Self Evaluation, uncertain Future and Coping Strategy

### 2.3 Statistical Analysis

To assess the fear of failure on six dimensions of National level boys in different competitive age groups, mean and standard deviation (Clarke and Clarke, 1974) were computed. ANOVA ( Clarke and Clarke, 1972) with independent competitive age groups of Mini, Sub-junior, junior and senior national levels and sex with six dimensions of fear of failure was computed. Where ever, F-ratio was found significant, Scheffe's Test of Post-hoc Analysis (Sheehan, 1971) was carried out to identify the significance of differences between the ordered paired means of different competitive age groups and sex. For the purpose of data analysis, SPSS 16.0 software was used. To check the obtained F-ratio, the level of significance was set at .05 level.

## 3. RESULTS

To find out the significance difference among National level boys on six dimensions of fear of failure in different competitive age groups ANOVA was computed and data pertaining to this has been presented in Table 1 and 2.

**TABLE 1**  
**ANALYSIS OF VARIANCE OF FEAR OF FAILURE AMONG NATIONAL LEVEL BOYS**  
**MALLAKHAMB PLAYERS IN DIFFERENT COMPETITIVE AGE GROUPS**

Dimensions	Source of Variance	df	Sum of squares	Mean Square	F-Value
Goal Setting	Between Groups	3	63.836	21.279	1.350
	Within Groups	128	2017.823	15.764	
Self Adequacy	Between Groups	3	28.404	9.468	0.951
	Within Groups	128	1274.225	9.955	
Uncertain Future	Between Groups	3	39.499	13.166	0.777
	Within Groups	128	2169.978	16.953	
Self Control	Between Groups	3	6.353	2.118	0.227
	Within Groups	128	1194.617	9.333	
Self Evaluation	Between Groups	3	57.391	19.130	1.271
	Within Groups	128	1926.328	15.049	
Coping Strategies	Between Groups	3	155.758	51.919	4.767*
	Within Groups	128	1393.969	10.890	

\*Significant at .05 level, , F.05 (3, 128)=2.68

It is evident from Table 1, that significant difference existed among national level boys Mallakhamb players of four different competitive age groups in their six dimensions of fear of failure, as the obtained F-values of 4.767 was higher than the

required  $F .05 (3, 128) = 2.68$  to be significant. But the rest of the dimensions of fear of failure were statistically insignificant, as the obtained F-values of 0.951, 0.777, 0.227 and 1.271 respectively were less than  $F .05 (3, 128) = 2.68$

As the obtained F-ratio on coping strategies dimension of fear of failure was significant, the Scheffe's Test of Post-hoc Comparisons was applied to study the significance of differences between the ordered paired means of boys Mallakhamb players in different competitive age groups and data pertaining to this has been presented in table 2.

**TABLE 2**  
**SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED PAIRED MEANS OF FEAR OF FAILURE OF BOYS MALLKAHAMB PLAYERS OF DIFFERENT AGE GROUPS ON COPING STRATEGIES DIMENSION**

Mini-National	Sub-Junior National	Junior National	Senior National	Paired Mean Difference	Confidence Interval
13.22	12.41	-	-	0.81	24.62
13.22	-	10.97	-	2.25	24.62
13.22	-	-	10.48	2.74	27.63
-	12.41	10.97	-	1.44	25.53
-	12.41	-	10.48	1.93	28.85
-	-	10.97	10.48	0.49	28.85

\* Insignificant at .05 level.

It is evident from the Table 2, that there were no significant differences among national level boys Mallakhamb players in coping strategies dimension of fear of failure between Mini national and Sub-junior National followed by Junior national and Senior national level mallakhamb players; between sub-junior national and junior national followed by senior national level Mallakhamb players and between junior national and senior national level Mallakhamb players, as the obtained mean differences of 0.81, 2.25, 1.44, 1.93 and 0.49 respectively were much less than the confidence intervals to be significant.

#### 4. DISCUSSION

The national level boys Mallakhamb players of different age groups had no significant difference in their goal setting, self adequacy, uncertain future, self control and self evaluation dimensions of fear of failure. But the significant difference was observed in coping strategies dimensions of fear of failure in case of boys Mallakhamb players. The Scheffe's Test of post-hoc comparison indicated the insignificant differences among national level boys Mallakhamb players of different age groups. But the national level mini boys Mallakhamb players were found to have more fear of failure followed by Sub-junior, Junior and Senior national level boys Mallakhamb players. It was also hypothesized that there would be no significance of difference among boys Mallakhamb players of different age groups in different dimensions of fear of failure" is partially accepted, as the significant difference existed among national level boys Mallakhamb players in different competitive age groups in Coping Strategies dimension of fear of failure, But the rest of the dimensions of fear of failure were statistically insignificant.

#### 5. CONCLUSIONS

1. Indian boys Mallakhamb players in different competitive age group levels, as whole exhibited different fear of failure on coping strategies dimension of FOF. But they

had similar FOF on goal setting, self adequacy, uncertain future, self control, and self evaluation dimensions.

2. Mini national level boys Mallakhamb players were found to have more FOF followed by sub-junior, junior and senior national levels.

### REFERENCES

- Clarke, H. Harrison & Clarke, David H. (1974).** Research Process in Physical Education (Englewood Cliffs, New jersey : Prentice Hall INC., p. 157.
- Clarke, H. Harrison & Clarke, David H. (1972).** Advance Statistics with Application Physical Education (Englewood Cliffs, New jersey : Prentice Hall INC., p. 14.
- Conroy, D. E., Willow, J. P., & Metzler, J. N. (2002).** Multidimensional fear of failure measurement: The performance failure appraisal inventory. *Journal of Applied Sport Psychology*, 14, 76-90.
- Correia, M., Rosado, A., Serpa, Sidónio & Ferreira, Vítor (2017)** "Fear of failure in athletes: gender, age and type of sport differences" University of Lisbon, Portugal REVISTA Iberoamericana De Psicologia Del Ejercicio Yel Deporte Vol. 12 2 pp. 1 85-193.
- Massey, W. V. (2007).** Demographic differences in shame coping styles for high school freshmen athletes. Paper presented at the Midwest Symposium for Sport and Exercise Psychology:Annual regional conference of the Association of Applied Sport Psychology, West Lafayette, IN: Wisconsin
- Michael, Wikman, Johan; Stelter, Reinhard; Melzer, Marcus; Hauge, Marie-Louise Trier; Elbe, Anne-Marie (2014).** "Effects of goal setting on fear of failure in young elite athletes". *International Journal of Sport and Exercise Psychology*, 12 (3 ) : 85-205.
- Sam S. Sagar, Ian D. Boardley and Maria Kavussanu (2011),** "Fear of failure and student athletes' interpersonal antisocial behaviour in education and sport" *British Journal of Educational Psychology*, 81 (3) : 391-408.
- Sagar, S. S., Lavallee, D., & Spray, C. M. (2007).** "Why young elite athletes fear failure: consequences of failure". *Journal of Sports Science* 25:11 (September, 2007) : 1171-84.
- Sheehan, Thomas J. (1971)** A Introduction to the Evaluation of Measurement Data in Physical Education (Massachusetts : Addison - Wesley Publication INC., P. 174.
- Shukla, R. K. (2014)** "Construction of Fear of Failure in Sports Questionnaire" Unpublished Ph.D Thesis, Rani Durgawati University, Jabalpur
- Sagar S. S., & Stoeber J. (2009),** "Perfectionism, Fear of Failure, and Affective Responses to Success and Failure: The Central Role of Fear of Experiencing Shame and Embarrassment". *Journal of Sport & Exercise Psychology*, 31: 5: 602-627.
- Sancho, Ana M. and Hewitt, Jay (1990),** Questioning Fear of Success, *Psychological Reports* 67 (3) : 803:806
- Wikman, J.M. , R. Stelter, M. Melzer, M.-L.T. Hauge & A.-M. Elbe (2014),** Effects of goal setting on fear of failure in young elite athletes *International Journal of Sport and Exercise Psychology* 12 (3):185-205



**RELATIONSHIP BETWEEN PHYSICAL AND INORGANIC  
CONTENTS IN SOIL IN BALCO AREA OF  
KORBA CITY**

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**ABSTRACT**

This study aims to investigate the correlation matrix of various physio-chemical parameters of soil in the Balco region of Korba. The physio-chemical parameters under scrutiny encompass a broad spectrum, including but not limited to, pH, organic matter content, moisture content, texture, nutrient levels, and heavy metal concentrations. As a whole, it was concluded that the correlations in between physical and chemical parameter had the variation in the obtained value of correlation among parameter together. The study revealed the strong to low and positive to negative correlations together in between selected parameters to detect in the soil of Balco area of Korba city

**Keyword: Soil, Balco, Metallic Ions, organic contents, physical parameter,**

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## 1. INTRODUCTION

Soil formation is complex and long time taking process. 100 -10000 years can be taken to create one inch of Topsoil. It is driven by many factors such as climate, topography, living organisms and the type of parent material. Soil can be divided into three horizontal layers. The top layer consists of mostly organic matter and biological activities. The middle layer is the zone of maximum material accumulation and the bottom is mainly the parental material but slightly altered (Mico, et.al.,2006).

**Moisture:** - The water that is eliminated by moderate heating or extracted using solvents is Hygroscopic water. "Air dried" Soil contains varying amounts of water which depend in particular on the nature of secondary mineral and external forces. By convention the term "Moisture" is considered to be unequivocal. After drying the soil at 105°C, moisture of soil is gravimetrically measured. This temperature is sufficient to eliminate "Free" forms of water. This temperature does not loss of organic matter and unstable salt (Garg, 2002).

**Electrical Conductivity:** - Soils differ in their salt content. The water-soluble salts in soils consist of various cations and anions. The salts that generally accumulate in soils are primarily composed of  $\text{Cl}^-$  and  $\text{SO}_4^{--}$  of  $\text{Ca}^{++}$ ,  $\text{Mg}^{++}$  and  $\text{Na}^+$  with small amount of  $\text{CO}_3^{--}$ ,  $\text{HCO}_3^-$ ,  $\text{NH}_4^+$  etc.

**pH :-** The term pH is suggested by Sorenson (1909) to explain the hydrogen ion activity of very dilute solution and is derived from French word Poirier hydrogen means power of hydrogen.<sup>31</sup> pH is a measure of acidity or alkalinity of the soil it is expressed as reciprocal of logarithm of hydrogen ion concentration of the soil solution.

**T.D.S.:-** Total dissolved solid is measured the dissolved inorganic and organic ionic compounds. The sources of TDS are agricultural runoff, domestic sewage, industrial effluents and weathering of soil and minerals etc. The high value of TDS change the taste of water, palatability and highly adverse effect on human being.

**Soil Organic Matter :-** Organic matter play an important role in the physical, chemical and biological properties of soil. In the fundamental processes of evolution mineralization allow the transformation of organic residue into inorganic compounds in the soil, Atmosphere and Hydrosphere. Then these are usable by flora and by micro-organism. Immobilization is the transformation of organic matter into more stable organic and organo - mineral compounds(Garg, 2002)..

**Total carbon content:** - Carbon occurs in the soil in the element form of Coal, graphite's, in the inorganic forms of carbonate, hydrogen carbonate and carbon dioxide and organically as plant and as the more resistant humus. For the analysis of total carbon, the element convert completely into carbon dioxide which is then determined gravimetrically or volumetrically. Oxidation is achieved by combustion and all forms of carbon can be included (Fernandez, and Sanchez, 1990).

**Nitrogen :-** Nitrogen Phosphorous and Potassium(NPK) are the three most important soil nutrients required for plant growth. It is principal element required by all crops. It is taken up by crops in the form of  $\text{NH}_3$  and  $\text{NH}_4$ . (Diacono, and Montemurro, 2010) plant growth is limited by nitrogen more than by any other element; All the important nitrogen changes that occur in soils are due to microbial activity, itself strongly influenced by micro-climatic conditions and thus the time and nature of sampling, handling and storing of soil samples, pre-treatment and method of analysis, all affects the analytical results (Fernandez, and Sanchez, 1990).

**Phosphorous:** - Phosphorous is essential for early growth spoil in the plant. It promotes early root formation and growth. It improves the quality of many fruits, vegetables and grain crops. Phosphorous sources include from manures, phosphate rock, chemical fertilizers and soil.

**Potassium:** Potassium is essential for protein synthesis and cell division. It decreases water requirement of plants and important stalk strength and resistance to lodging (Mico, et.al.,2006)..

**Sulphur:** Sulphur is an important secondary nutrient. Its deficiency has been reported in the most parts of India. Sulphur is also deficient in soils that are sandy and those having low organic matter. Its main function is related to influencing the quantity and quality of oil in oil seed crops. (Hinesly, et.al. 1984)

**Calcium:** Calcium is exchangeable cation and soluble salt in soil. It is macro-nutrient element. In plants calcium is essential for the growth of root tips and tends to accumulate in leaves as calcium pectate. At least 30% of the adsorption complex of a soil must be saturated with calcium for the average crop to obtain sufficient amounts.<sup>18</sup> The distribution of elements Ca & Mg in the soil depends upon the nature of the soil, the parental material and the environmental conditions. Ca and Mg are found to be deficient in soil, where there is high rainfall resulting in the leaching and weathering of the soil. These soils are referred to as Laterites or acidic soils or base unsaturated soils. (Poor in bases such as Ca, Mg, Na and K. (Diacono, and Montemurro, 2010)

**Magnesium :-** Magnesium occurs principally in the clay minerals being common in micas vermiculites and chlorites, it sometimes occurs as the carbonate, smaller quantities are present as exchangeable ions, water soluble forms and in organic combination. In chlorites Mg occurs in the layers alternating with silicate layers and it is a common interlayer cation in vermiculites.<sup>37</sup> It increases Sugars, Vitamins, Starches and Inulin in root crops (Hiller and Brummer, 1997). **A deficiency** of Mg typically causes chlorosis and has been associated recent years with certain animal disorders.<sup>33</sup> A magnesium deficiency can be caused not only by small concentration of the nutrient in a soil but by ionic antagonism particularly in acid and potassium-rich soils. In alkali soils Mg can be deficient due to precipitation and partly through the ion effect (Fernandez, and Sanchez, 1990).

**Copper** It is one of the essential elements for human beings. It is found in less quantity as an essential element for organisms. Excess of Cu in human body is toxic and causes hypertension and produces pathological changes in brain tissues. Excess ingestion of Cu is responsible for specific disease of the bone (Hinesly, et.al. 1984). Copper is widely distributed in soils and minerals. One of the most important Copper mineral is Chalcocite  $Cu_2S$  and another is Chalcopyrites  $CuFeS_2$ . As a plant nutrient Copper occurs in the enzyme Polyphenol oxidase, which is involved in more than one function depending upon the plant. The role of Copper in metabolism of nodulated clover and found its effect to vary with the supply of combined nitrogen, when Copper was deficient, plants receiving nitrate-nitrogen accumulated amino-acids, whereas plants relying upon symbiotic fixation of nitrogen showed a continuous increase in soluble amino acids correlated with the level of Copper (Loeppert and Suarez, 1996)

**Zinc-Zn** is one of the important trace element that play a vital role in the physiological and metabolic process of many organisms. Nevertheless, at higher concentration, Zinc can be toxic to the organisms. It utilizes in Protein synthesis. For soil the concentration of Zn ranged between a minimum of 0.6 and a maximum of 1.4 mg/L (Khan 2007). An excess of Zinc in soil suppresses phosphorus uptake by plant and can cause leaf chlorosis. Zinc is widely distributed as the Sulphide, Sphalerite, the Carbonate, Smith-sonite, Silicate calamine, Hemimorphite and is associated with Pyrites, shortage of Zinc in a soil leads to a decrease in plant protein synthesis and a decrease in uptake of phosphorus and nitrogen, Manganese uptake increases.<sup>18</sup> Adequate Zinc is absolutely necessary for the synthesis of Alanin, Glycin, Proline, Threonine,



Serine, Valine, Leucine, Aspartic acid, Glutamic acid and that it has a specific role in the synthesis of Tyrosine tryptophan and Phenylalanine (Andrew, et.al. 2012)

Manganese-Manganese occurs in primary and particularly in ferromagnesian rocks. By Solution from the rocks and subsequent redeposition manganese appears in several minerals, the most abundant of which is Pyrolusite  $MnO_2$ . Another common mineral manganite  $MnO(OH)$ , is found frequently in association with Granitic igneous rocks and can change with time into Pyrolusite. IN soils we can distinguish water soluble exchangeable, reducible manganese. The nature and distribution of manganese in soils is largely dependent upon pH and redox Potential. (Hendershot, Lalonde, and Duquette, 1993)

## 2. METHODOLOGY

The sampling point was detected with 100 meter distance of every selected sample spot i.e. Balco area of Korba city. Soil sample was collected from Balco in the sessions 2009. Taking a core or slice of the plow layer at intervals of 15-20 steps. And put into bag. Slices of sample must be about 1 Kg which was taken from this as representative sample. Place the sample in water resistant paper bag. The depth of soil using aluminum foil label. For the purpose to find out the correlation among in between selected soil parameters i.e. moisture. pH, electrical conductivity, total dissolved solid, organic carbon contents, nitrogen contents, total sulphur, the experimental method was used to detect them in each collected sample.

## 3. RESULTS AND DISCUSSION

Simple correlation analysis were carried out for all obtained data using the commercially available software package. The analysis of data has been presented below in Table 1

**TABLE 1**  
**CORRELATION OF SOIL SAMPLE AT BALCO AREA IN KORBA CITY**  
**DURING 2009**

Variables	Moisture	PH	EC	TDS	Org.C	N	S	Mg	Ca	Mn	Zn	Cu
Moisture	1	-0.259	-0.123	0.663	0.841	0.047	0.586	-0.136	-0.057	-0.301	-0.386	0.731
PH		1	0.183	0.209	0.010	0.719	0.169	0.164	0.148	0.488	0.307	0.488
EC			1	-0.043	-0.113	0.007	0.064	0.504	-0.318	-0.150	-0.124	0.024
TDS				1	0.842	0.638	0.762	-0.340	-0.252	-0.679	-0.144	0.351
Org.C					1	0.367	0.871	-0.224	-0.169	0.587	0.046	0.878
N						1	0.594	-0.188	-0.162	-0.707	0.164	-0.358
S							1	-0.184	-0.352	-0.694	0.085	0.372
Mg								1	-0.404	-0.003	0.005	-0.031
Ca									1	0.336	0.067	-0.014
Mn										1	-0.416	-0.134
Zn											1	-0.041
Cu												1

From above Table-1 shows the correlation matrix among the physical and chemical content together in soil sample of Balco area during 2009, which are explained below-

In case of Moisture, Strong correlation was observed between moisture- OC (0.841). Moderate correlations were observed between moisture- TDS (0.643) followed by S (0.586) and Cu (0.731) The low degree correlation was seen in between Moisture--N(0.047). The negative

correlations were observed between moisture-pH (-0.2f9) followed by EC(-0.123), Mg(-0.136), Ca(-0.057), Mn(-0.301), and Zn(-0.386) in the soil of Balco region during 2009..

In case of pH, Moderate positive correlations were observed in between pH-N (0.719) followed by MN(0.488), ZN(0.307) and Cu (0.488) Low correlations were observed in between pH-EC (-0.642) followed by TDS(0.193), OC(0.209), N(0.169), S(0.164), Mn (0.148), Zn and Cu

In case of EC, Moderate positive correlation was observed in between EC-Mg(0.504). Negative correlations were observed between EC-OC (-0.043) followed by OC(-0.113), S(0.007) Mn(-0.150), Zn(-0.124), Cu (0.024) in soil sample during 2009.

In case of TDS, Strong correlations were observed in between TDS-OC(0.842) and S(0.763). Moderate correlations were observed in between TDS-N(0.638) followed by Mg (0.340), and Cu(0.321). in soil sample during 2009.

In case of Organic Contents, Strong correlations were observed in between OC-S(0.871) and Cu(0.878) Moderate correlations were observed in between OC-N(0.367) and Mn(0.587) in soil sample during 2009

.In case of N, Strong negative correlation was observed in between N-Mn(-0.707). Moderate positive correlation was observed between N-S(0.594) only. Rest of the contents had negative correlations with Nitrogen in soil sample during 2009.

In case of S, Moderate positive correlation was observed in between S-Cu(0.372) only. Rest of the contents had negative correlations with sulphur in soil sample during 2009.

In case of Mg, Moderate negative correlation was observed in between Mg-Ca(-0.404) only Low correlations were observed in between Mg-Mn(-0.003) followed by Zn (0.005) and Cu(-0.031) in soil sample during 2009

.In case of Ca, Moderate positive correlation was observed between Ca-Mn(0.336). Low correlation was observed in between Ca-Cu(0.067) and Ca-Cu(-0.014 in soil sample during 2009.

In case of Mn, Negative correlation were observed in between Mn-Zn(-0.416). Moderate negative correlation was observed in between Mn-Cu(-0.134) in soil sample during 2009.

In case of Zn, Low negative correlation was observed in between Zn-Cu(-0.041) in soil sample during 2009.

#### **4. CONCLUSION**

This study aims to investigate the correlation matrix of various physio-chemical parameters of soil in the Balco area of Korba city. The physio-chemical parameters under scrutiny encompass a broad spectrum, including but not limited to, pH, organic matter content, moisture content, texture, nutrient levels, and heavy metal concentrations. As a whole, it was concluded that the correlations in between physical and chemical parameter had the variation in the obtained value of correlation among parameter together . The study revealed the strong to low and positive to negative correlations together in between selected parameters to detect in the soil of Balco area of Korba city.

#### **REFERENCES**

- Andrew, M.O. Reilly, Martin, P. Wanielista, Ni-Bin Chang, Willie G. Harris, and Zhemin Xuan,(2012).** Soil Property Control of Biogeochemical Processes beneath Two Subtropical Stormwater Infiltration Basins, *Jonral of Environmental Quality*. 41, 564- 581.
- Diacono, M., and Montemurro, E.(2010).** Long-term Effects of Organic Amendments on Soil fertility : A review”, *Agron, Sustain, Dev*, 30, 401-422. doi:10.1051/agro/2009040 .

- Fernandez, E.C.M. and Sanchez, P.A.(1990).** The role of Organic Inputs and soil Organic Matter for Nutrient Cycling in Tropical soils, Organic Management and Tillage in Humid and Sub-humid Africa. Pushparajah F. and Latham M. (eds.). Bangkok, Thailand IBSRAM. Proc., 10, 169-212.
- Frouz, Jan., Kristueek,Vaclav., Bastl Jan., Kalcik, Jiri., and Vankova Hana.(2005).** Determination of Toxicity of Spoil Substrates after Brown Coal mining using a Laboratory reproduction test with Enchytraeus Crypticus (Oligochaeta), Water, Air and Soil Pollution, 162, 37-47.
- Garg, S.S. (2002).** Seasonal variation of Physico-chemical Parameters of Soil Quality of Nagarpanchayat, Chitrakoot”, Indian J. Env. Prot.,22(10), 1105-1112.
- Garg, S.S. and Dash P.P.(2011)** “Study on Leaching Effect of Ash with reference to Jindal Super Thermal Power Plant in Tamnar, District, Raigarh, Chhattisgarh”, Indian J.Environmental Protection, 8, 666-671.
- Hinesly, T.D., Hansen, L.G., Bray, D.J., and Redborg, K.E.(1984).** Longterm use of Sewage Sludge on Agricultural and Disturbed Lands”, EPA-600/S2-84-128, U.S. Environmental Protection Agency, Municipal Environmental Research Laboratory, Cincinnati, Ohio.
- Hendershot, W.H., Lalande, H., and Duquette, M.(1993).** Ion exchange and Exchangeable cations. In R. Carten (ed.) Soil Sampling and Methods of Analysis”, Lewis, Boca Raton, FL., 167-175 .
- Hiller, D.A. and Brummer, G.W.(1997).** Electron Microprobe studies on Soil Samples with Varying Heavy metal Contamination: Part - 2. Contents of Heavy metals and other Elements in aggregations of Humic Substances, Litter Residues, and Char coal Particles, Pflanzenrnahar Bodenkd 160, 47-55.
- Khan Khalid Saifullah, Chandr Krishan, hartmann, Gerald Lamersdorb Norbert, Joergensen Rainer Georg,(2007)** Sources of Heavy Metals and Their Longterm Effects on Microbial C, N. and P Relationships in Soil, Water Air and Soil Pollut, 181, 225-234 .
- Loeppert, R.H., Suarez, D.L. (1996).** Carbonate and Gypsum, in :D.L. Sparks (Ed), Methods of Soil Analysis. Part - 3, Chemical Methods, SSSA Book Sereis No. 5, ASA and SSSA, Madison, USA.
- Mico, C., Recatala L., Peris, M., Sanchez, J. (2006).** Assessing Heavy metal Sources in Agricultural soils of an European Mediterranean area by Multivariate Analysis”, Chemosphere. 65, 863-872

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