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BAREFOOT, SHOD AND SHOE SPIKE: WHICH IS MORE EFFICIENT?

Dr. Kuldeep Singh[1] Mahipal[2]

Affiliations:

1 Ph. D in Physical Education, (Asstt. Prof. of Physical Education), Indira Gandhi National College, Ladwa (Kurukshetra) Affiliated to K. U., Kurukshetra (Haryana), Kuldeepskkr@gmail.com

2 M.Phil. in Physical Education, Athletics Coach Sports & Youth Affair Deptt. Panipat, Haryana. Mahi.gaur13@gmail.com

ABSTRACT

Purpose: The purpose of the study is to find out the difference among barefoot, shod and spikes running conditions of sprinters in order to provide information about the potential effects of footwear on competitive runners. Design/methodology/approach: The twenty six (n= 26) male sprinters participated at state/ inter-collegiate level competitions of their age range 17 to 25 years were purposively selected as subjects from Haryana State, India. The acceleration ability by 30m run test, running performance by 100 Mts. race and stride frequency by high knee action for one minutes were measured in three different bare foot, shod and with shoe spikes running conditions of sprinters. To calculate the mean difference among different running conditions one way ANOVA and to calculate multiple Comparisons among different running conditions; where difference is exists Tukey HSD test were used. Findings: A statistical significant mean difference were observed for 100m sprint and acceleration run ability in all three different running conditions, whereas there exists insignificant mean difference among different running conditions i.e., bare foot, shod and shoe spikes running conditions of sprinters. Conclusion: It is concluded that the sprinters performed better with spikes as compared to shod and barefoot running conditions in acceleration run and 100M race, hence sprinters had more stride frequencies in natural barefoot condition as compare to shod and shoe spikes running conditions. Originality/values: The study provides a succinct introduction to the use of shoe spikes, shod and barefoot running conditions during practices and competitions and makes an innovative contribution by focusing on, how spikes helps in acceleration zone and bare foot in stride frequency.

Keynotes: Shoe spikes, barefoot, shod and sprinters.

1. INTRODUCTION

In recent days different shoe manufacturing companies are introducing impressive and effective shoes/spikes for training as well as for competitions but still in some countries trainers

are also emphases upon barefoot training. But in reviewing the research, from the Nike Sport Research Laboratory published an article in which he postulated that the three main needs of the athlete are performance, injury protection, and comfort (**Lafortune, 2008**). In the 1960 Olympic Games, an Ethopian barefoot runner named Abebe Bikila won the Marathon gold with a time 2:15:16. This set the marathon world record, and is considered a respectable time to this day. This was probably one of the first accounts in modern times of someone winning a major competition while running completely without shoes (**Christopher McDougall, 2009**). Zola Budd is another barefoot runner that won recognition by setting a world record at 5000 m in 1985, finishing at 15:01:83 **(Christopher McDougall, 2009).** This is question that many have sought to answer. One recent trend is the interest in barefoot running. There are many voices on the Internet that believe it may be more beneficial to run barefoot than the standard practice of running in cushioned shoes **(Barefoot runner, 2012).** Manufactures of bare foot sports shoes currently state that wearing their shoes will stimulate and strengthen muscles in the feet and lower legs, improving general foot health and reducing the risk of injury. Further stimulate neural function important to balance and agility. The shoes would even help you to unleash your optimal running stride. The impact force has been a major concern for shoe designers and manufacturers, as one of the primary roles for running shoes is to provide shock absorption (**Cavanagh 1980; Nigg & Wakeling 2001**). Additionally, for improving the athlete performance the total weight of the shoe has been reduced. Hence, racing tracks, shoes and spikes have been developed to help facilitate optimal performance (**Cavanagh & Lafortune 1980; Denton 2005**). **William (2001)** stated "Natural walking is mechanically impossible for any shoe-wearing person. Natural walking and footwear are mechanically incompatible because shoes convert the natural foot into the unnatural which doctors consider normal." In comparison to most running shoes, spikes and racing track surface have less cushioning and a flat, thinner heel to produce a lighter shoe for tournaments and practice/training sessions. While competitive footwear has its time and place, it is assumed that this type of shoe should be used with alertness and awareness of the possible increased injury risks (**Denton, 2005**). The body need to adapt to barefoot running anatomically if one previously has been running only in shoes and the lack of proprioception in a minimal shoe affect running form (**Lieberman,2012**). This research, "Will be a Guide for Runners that in which conditions we should do training with bare, shod and shoe spikes because we may find spikes uncomfortable at first because of the lack of cushioning, and the sharp spikes located under the ball of our foot. There will be a period of adjustment until they become comfortable, and we may choose to use our regular running shoes for most of our training, and spikes for racing only. It is true a big question arise on the minds of every athletes, coaches, trainers, physical therapists and physicians is whether running barefoot, shod or with shoe spikes are better for athletes or not. In present study we try to find out answer of this question by experimental research. The results of the present study may be helpful for athletes, physical education teachers, coaches and sport trainers.

2. METHODOLOGY

2.1 Sample :

For the purpose of the present study, Twenty-six (N=26), Male athletes participated at Inter-Collegiate and State level competitions of their age group of 17-25 years from Haryana were selected as subject in this study. The subjects were purposively selected and tested three times for selected kinematics and kinetic variables in different conditions of running i.e., barefoot, shod and running with spikes.

2.2 Selection of Variables

The variables were selected according to the running activities i.e., 100m sprint test to observe bare foot, shod and with spikes running condition effects on athletes, acceleration ability (30 m sprint), stride frequency (by high knee action for one minutes. The 400m grassy surface standard track was used for 100m sprint tests. The subjects were used their own routine training

shoes and (5 or 7 nails) spikes. The subjects were belongs to semi rural area and they were used to do running in bare foot, shod and with shoe spikes.

2.3 Statistical Analysis

The data were analyzed by using ANOVA to observe significant mean difference among bare foot, shod and with spikes running condition of sprinters and to calculate multiple Comparisons, where difference exist Tukey HSD test was used with the help of SPSS (version 11.5) computer software.

3. RESULTS & DISCUSSION

TABLE 1

MEAN, STANDARD DEVIATION, STD. ERROR AND ONE-WAY ANOVA OF ATHLETES ACCELERATION RUN ABILITY AMONG BARE FOOT, SHOD AND SHOE SPIKES RUNNING CONDITIONS. (N=26)

Group of acceleration run ability Conditions	Mean (Sec.)	S.D.	Std. Error	Source of variance	Sum of Square	DF	Mean Square	F-ratio
Acceleration run ability with Bare Foot (Sec.)	4.4227	.18224	.03574	Between Group	.427	2	.213	4.317
Acceleration run ability with Shod (Sec.)	4.4323	.22605	.04433	Within Group	3.709	75	.049	
Acceleration run ability with Spikes (Sec.)	4.2708	.25308	.04963					
Total	4.3753	.23176	.02624	Total	4.136	77		

Table 1 shows Mean, standard deviation, std. error and 'F' value of sprinters acceleration run ability with bare foot, shod and shoe spikes. The calculated 'F' value of acceleration run ability is 4.317, which is greater than the required table value at 0.05 level of confidence. Results shows that the 'p' value .017 is less than 0.05 indicates that there exist significant mean difference at least between two groups. Further the mean values of acceleration run ability of sprinters with shoe spikes (4.271) conditions were found less as compared to sprinters run with barefoot (4.423) and shod (4.432) on the other hand mean value of sprinters acc. ability with barefoot (4.423) is less than that of shod running (4.432) condition. The (30mts. run) acceleration run ability is inversely related to performance of the sprinters, if performance increases the time will decrease, hence it clearly indicates that the sprinters acceleration run ability with shoe spikes followed by barefoot are better than that of shod running conditions.

It is because runners running with flat/minimalist footwear and bare foot have a shorter stride length (Less flight phase); but higher stride frequency (faster turnover) which is main necessity of acceleration run ability; spikes also enables the athletes to add traction to run as fast as possible by generating ground reaction force. In case of running with shoe it add sole height of shoe by virtue of this athletes have a wide stride length (longer flight phase); and lower strides frequency (slower turnover) which is opposite to the basic need of acceleration zone. To find out where the differences exist among different running conditions, we use the Tukey posthoc multiple compression test.

TABLE 2

TUKEY POSTHOC MULTIPLE COMPRESSION TEST OF ACCELERATION RUN ABILITY.

(DEPENDENT VARIABLE: MT30)

(I) GROUP30	(J) GROUP30	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Acceleration Ability (by 30 Mts. run test)					Lower Bound	Upper Bound
Acceleration run Ability with bare foot	Acceleration run Ability with shod running	-.0096	.0617	.987	-.1571	.1379
	Acceleration run Ability run with spikes	.1519*	.0617	.042	.0044	.2994
Acceleration run Ability with shod running	Acceleration run Ability with bare foot	.0096	.0617	.987	-.1379	.1571
	Acceleration run Ability with spikes	.1615*	.0617	.028	.0141	.3090
Acceleration run Ability with spikes	Acceleration run Ability with bare foot	-.1519*	.0617	.042	-.2994	-.0044
	Acceleration run Ability with shod running	-.1615*	.0617	.028	-.3090	-.0141

* The mean difference is significant at the .05 level.

Table 2 clearly indicates that there exist significant difference (.1519) at .05 level of significance of 30 mts. acceleration run ability between barefoot and with spikes running conditions but there exist no significance difference (-.0096) between acceleration run ability between barefoot and shod running conditions. It shows that there exists significant difference (.1615) at .05 level of significance in acceleration run ability between running with shod and with spikes running conditions. It suggests that in case of acceleration run ability spikes and bare foot running conditions are better than that of shod running, hence shoe increase extra mass and height between foot and running surface so it increases stride length (More flight phase) but decreases stride frequency which is basic need of acceleration run ability. In case of spikes and bare foot, spikes add traction to move forward without slipping or jerking foot backwardly and negative heel spikes helps athletes mid to forefoot landing to encourage athlete demand. Runners with spikes get lightest foot covering for safety which provides psychological gain to athletes for avoiding any surface related injury.

Table 3

MEAN, STANDARD DEVIATION, STD. ERROR AND ONE-WAY ANOVA OF ATHLETES 100 MTS. SPRINTING ABILITY AMONG BARE FOOT, SHOD AND SPIKES RUNNING CONDITIONS. (N=26)

Group 0f 100M sprint Conditions	Mean Sec.	S.D.	Std. Error	Source of variance	Sum of Square	DF	Mean Square	F	Sig. P value
100M sprint with Bare Foot (Sec.)	13.054	.74794	.14668	Between Group	4.417	2	2.209	4.312	.017
100M sprint with Shod	13.037	.64969	.12742						

(Sec.)				Within Group	38.417	75	.512		
100M sprint with shoe Spikes (Sec.)	12.541	.74510	.14613						
Total	12.877	.74585	.08445	Total	42.835	77			

Table 3 shows Mean, standard deviation, std. error and 'F' value of 100 Mts. sprinting ability with bare foot, shod and shoe spikes. The calculated 'F' value of 100 Mts. sprint is 4.312, which is greater than the required table value at 0.05 level of confidence. Result shows that the 'p' value .017 is less than 0.05 indicates that there exists significant mean difference at least between two groups. Further the mean values of 100Mts sprint with shoe spikes (12.540) conditions were found less as compared to sprinters run with barefoot (13.054) and shod (13.037) on the other hand mean value of 100 Mts. sprint with shod (13.037) is less than that of barefoot running (13.054) condition. The 100mts. sprint time is inversely related to performance of the sprinters, if performance increases the time will decrease, hence it clearly indicates that the 100 Mts. sprint with shoe spikes followed by shod are better than that of barefoot running conditions.

TABLE 4

TUKEY POSTHOC MULTIPLE COMPRESSION TEST OF 100 MTS. RUNNING ABILITY.(DEPENDENT VARIABLE: MT30)

(I) GROUP	**(J) GROUP**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
100 Mts. sprinting conditions					Lower Bound	Upper Bound
100Mts sprints with bare foot	100 Mts. with shod running	.0169	.1985	.996	-.4577	.4916
	100Mts with spikes	.5131*	.1985	.031	.0384	.9877
100 Mts sprints with shod running	100Mts with bare foot	-.0169	.1985	.996	-.4916	.4577
	100Mts with spikes	.4962*	.1985	.038	.0215	.9708
100Mts sprints with spikes	100Mts with bare foot	-.5131*	.1985	.031	-.9877	-.0384
	100 Mts with shod running	-.4962*	.1985	.038	-.9708	-.0215

* The mean difference is significant at the .05 level.

It is obvious from table- 2.2 that there exist significant difference (.5131) at .05 level of significance of 100 mts. runing ability between barefoot and shoe spikes running conditions but there exist no significance difference (.0169) between barefoot and shod running conditions. It also shows that there exists significant difference (.4962) at .05 level of significance in 100mts. mts. running ability between shod and with spikes running conditions. Hence it reveals that in case of 100m sprint ability athletes performed better in shoe spikes running condition as compare to bare foot and shod running conditions it is because runners running with minimalist sole spikes have a narrow stride length (shorter flight phase); and higher strides frequency (faster turnover). In condition of running with spikes complete body leads by upper body; spikes enables the body's to absorb the shocks and forces, protects the foot from trauma and injuries and generates ground reaction force without jerk.

TABLE 5

MEAN, STANDARD DEVIATION, STD. ERROR AND ONE-WAY ANOVA OF ATHLETES STRIDE FREQUENCY AMONG BARE FOOT, SHOD AND SPIKES CONDITIONS. (N=26)

Group	Mean	S.D.	Std.	Source	Sum of	DF	Mean	F	Sig.

Stride Frequency	Sec.		Error	of variance	Square		Square		P value
High Knee Action with Bare Foot	25.923	3.084	.60491	Between Group	35.179	2	17.590	1.538	.221
High Knee Action with Shod	25.385	3.287	.64469	Within Group	857.538	75	11.434		
High Knee Action with Spikes	24.308	3.739	.73332						
Total	25.205	3.405	.38554	Total	892.718	77			

Table 4 shows Mean, standard deviation, std. error and 'F' value of stride frequency (High knee action) with bare foot, shod and shoe spikes conditions. The calculated 'F' value of stride frequency is 1.538, which is greater than the required table value at 0.05 level of confidence. Result shows that the 'p' value .221 is greater than 0.05 indicates that there exists insignificant mean difference among any groups. Further the mean values of stride frequency with barefoot (25.923) conditions is found more as compared to stride frequency with shod (25.385) and shoe spikes (24.308) on the other hand mean value of stride frequency with shod (25.385) is more than that of shoe spikes (24.308) condition. Hence, it clearly indicates that the stride frequency with bare foot followed by shod are better than that of shoe spikes running conditions. It suggests that, the bare foot runners performed better in stride frequency test as compared to running with spikes condition it is due to in case of bare feet; runners leads on the outside middle of the foot and the initial force peak occurs very rapidly, while in spikes, there is negative drop from forefoot to heel in the quest to provide greater performance assistance to run fast; runners foot strike first then heel with ground and it increases the time taken for the initial force peak. Spikes also add mass to the foot, which slowing down the runners. Athletes running with bare foot also have a shorter stride length (Less flight phase); but higher stride frequency (faster turnover).

4. CONCLUSION

From the results of the present study concluded that in acceleration and 100mts running ability the sprinters with shoe spike condition perform better as compared to shod and bare foot running conditions and there exist significant mean difference at .05 level of significance, while mean values shows that runners with shod performed better as compared to bare foot condition but there exist insignificant difference. Whereas in case of stride frequency the mean value shows that bare foot runners was better than that of shod and shoe spike runner and shod runner performed better as compared to shoe spikes runners but there exist insignificant mean difference among them.

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ANALYSIS OF SELECTED PSYCHOLOGICAL VARIABLES AMONG HIGHER SECONCARY LEVEL KHO-KHO, KABADDI AND VOLEYBALL PLAYERS

Rayaz Ahmad Najar[1], Dr. Zahoor Ahmad Mir[2] & Musrat Shahnaz [3]

Affiliations:

1. Pursing M.Phil, Mewar University Chittorgarh Rajasthan India.
2. Contractual Lecturer Govt., Degree College Magam J&K, India.
3. Pursing M.PE.d, central university j & k India.
Corresponding Author: Lecturer Govt, Degree College Magam J&K, India. zahoor.mir82@gmail.com

ABSTRACT

The present study is a comparative analysis of selected psychological variables of Higher Secondary level the Kho Kho, Kabaddi and Volleyball players. The purpose of the study was to make a comparative analysis of cognitive anxiety, somatic anxiety and self-confidence among, higher secondary level Kho Kho, Kabaddi, and Volleyball players. To facilitate the study forty five subjects each in Kho Kho, Kabaddi, and Volleyball players from the affiliated Higher Secondary of Kashmir were selected as subjects at randomly. One-way analysis of variance was used to find out the difference between psychological variables. In case of significance of mean difference was observed on the criterion measure, to find out which pair of group is higher among the others, as a post- hoc, the Schaffer's test was applied test at 0.05 level of significant was adopted by SPSS 17 version.

Keywords: Self-Confidence, Somatic Anxiety, Cognitive Anxiety.

1. INTRODUCTION

As we know that competition is a social process that takes place when prizes are given to people on the basis the comparison of their performance with the performance of others participating in the same event (Coakley, 1994).

In sport, pre-competitive anxiety refers to an unpleasant emotion which is characterized by imprecise but persistent feeling of uneasiness and fear before competition. Anxiety is a reaction to impending danger: real or imaginary. It contains of two subcomponents, namely cognitive (mental) and somatic (physiological), which influence the performance before and during competition. Cognitive is the mental component, characterized by negative expectation about success or self-evaluation, negative self-talk, inability to cope, worry about performance, fear of failure, inability to concentrate and attention narrowing (Jervis, 2002). That is, players who are prone to experiencing anxiety have a tendency to worry because they have an attention disposition to observe situational threats (e.g., Mathews, 1990).

Worry is also a component of "cognitive interference," which refers to a class of cognitions that are intrusive, unwanted, undesirable and at times disturbing to the individual (Sarason, Pierce, & Sarason, 1996).

2. METHODOLOGY

2.1 Selection of Subjects

The prospective cross study was carried out and forty five subjects in each Kho-Kho, Kabbadi and Volleyball players from the affiliated Higher Secondary of Kashmir were selected as subjects of age group 16-18 years were taken randomly.

2.2 Selection of Instrument

Illusion of Self-Evolution Questionnaire was used to measure Cognitive Anxiety, Somatic Anxiety, and Self- Confidence developed by (Martens Burton Veale Bumped Smith 1983). This questionnaire consists of 27 questions of 3 components, namely cognitive anxiety, somatic anxiety and self- confidence. Each component consists of 9 questions and the success of scores range from 9-36.

2.3 Statistical Analysis

One – Way analysis of variance was used to find out the difference between three psychological variables among affiliated Higher Secondary Level men Kho-Kho, Kabaddi and volleyball players**.**

3.RESULTS

To find out the difference between three psychological variables among affiliated Higher Secondary Level men Kho-Kho, Kabaddi and volleyball players., F-ratio was calculated and data pertaining to this has been presented in Table 1 to 3 and depicted figure 1 to 3

TABLE 1
ANALYSIS VARIANCE OF COGNITIVE ANXIETY AMONG HIGHER SECONDARY LEVEL KHO-KHO, KABADDI AND VOLLEYBALL PLAYERS

Mean Value			Source of Variance	Sum of Squares	Df	Mean Square	F –value
Kho kho	kabaddi	Volleyball	Between Groups	0.103704	2	0.05	0.02
22.22	22.27	22.29	Within Groups	2431.822	134	18.42	

Insignificant at .5 level, F .05 (2, 134) = 3.00

Table 1. Shows that the obtained mean values on cognitive anxiety of Kho Kho, Kabaddi and volleyball players are 22.22, 22.27, and 22.29 respectively. The analysis of variance (ANOVA) of the mean proved that there was a significant difference in cognitive anxiety between the players as the obtained F value 0.02 was lesser than the required table value of 3.00 to be significant at 0.05level of confidence with 1,134 degree of freedom.

TABLE 2
ANALYSIS VARIANCE OF SOMATIC ANXIETY AMONG HIGHER SECONDARY LEVEL KHO KHO, KABADDI AND VOLLEYBALL PLAYERS

Mean Value			Source of Variance	Sum of Squares	Df	Mean Square	F -value
Kho kho	kabaddi	Volleyball	Between Groups	660.04	2	330.02	19.38
25.64	27.62	22.27	Within Groups	2247.69	134	17.03	

Significant at .5 level, F .05 (2, 134) = 3.00

Table 2 Shows that the obtained mean values on somatic anxiety of kho-kho, kabaddi and volleyball players are 25.64, 27.62, and 22.27 respectively. The analysis of variance (ANOVA) of the mean proved that there was a significant difference in somatic anxiety between the players as the obtained F- value 19.38 was greater than the required table value of 3.00 to be significant at 0.05level of confidence with 1,134 degree of freedom.

TABLE 3

ANALYSIS VARIANCE OF SELF CONFIDENCE AMONG HIGHER SECONDARY LEVEL KHO KHO, KABADDI AND VOLLEYBALL PLAYERS

Mean Value			Source of Variance	Sum of Squares	Df	Mean Square	F -value
Kho kho	kabaddi	Volleyball	Between Groups	1575.511	2	787.76	48.01
29.27	29.78	22.29	Within Groups	2165.822	134	16.41	

Significant at .5 level, F .05 (2, 134) = 3.00

Table 3 Shows that the obtained mean values on self confidence of kho kho, kabaddi and volleyball players are 29.27, 29.78, and 22.29 respectively. The analysis of variance (ANOVA) of the mean proved that there was a significant difference in self -confidence between the players as the obtained F-value 48.01 was greater than the required table value of 3.00 to be significant at 0.05 level of confidence with 1,134 degree of freedom.

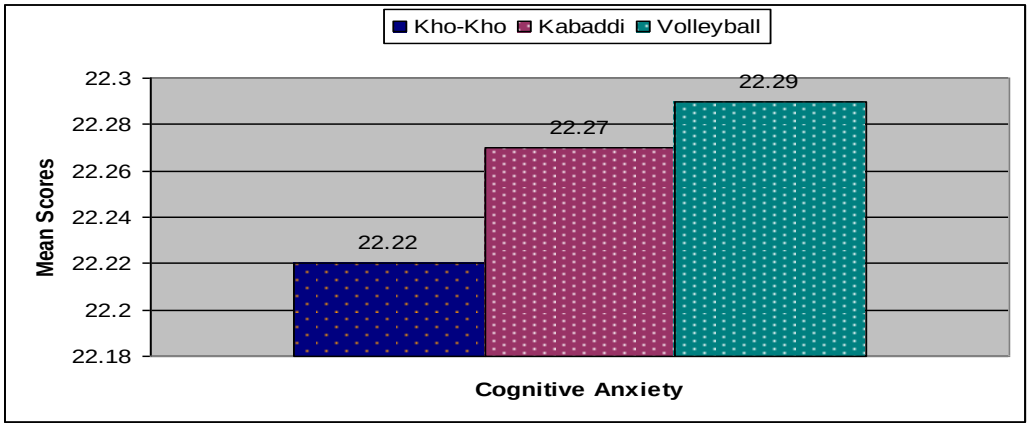

FIGURE-1 :MEAN VALUE OF COGNITIVE ANXIETY AMONG HIGHER SECONDARY LEVEL KHO KHO, KABADDI AND VOLLEYBALL PLAYERS

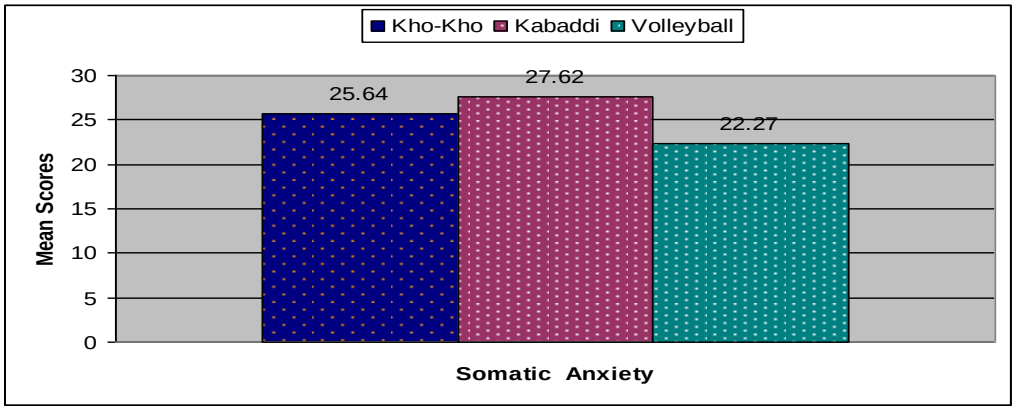

FIGURE-2 :MEAN VALUE OF SOMATIC ANXIETY AMONG HIGHER SECONDARY LEVEL KHO KHO, KABADDI AND VOLLEYBALL PLAYERS

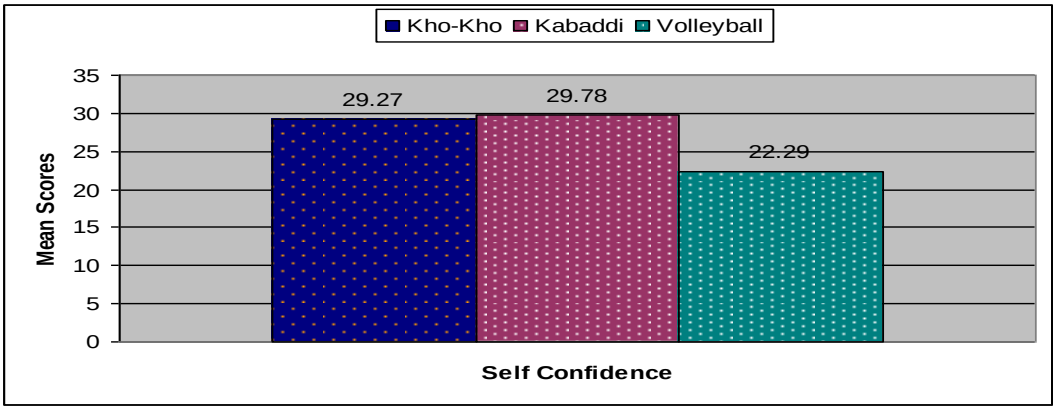

FIGURE-3: MEAN VALUE OF SELF CONFIDENCE AMONG HIGHER SECONDARY LEVEL KHO-KHO, KABADDI AND VOLLEYBALL PLAYERS

4. DISCUSSION

The result shows that there was significant difference exists among higher secondary level kho kho, kabaddi and volleyball players. The volleyball players possess more cognitive anxiety than kabaddi and kho kho players. The post hoc analysis proved that the difference between kho kho and kabaddi players were significant. It was also proved that there was a significant difference between kho kho players and kabaddi players and kabaddi and volleyball players in cognitive anxiety. Table II Shows that there was exists significant mean difference exists kh- kho, Kabaddi and volleyball players. The kabaddi players possess more somatic anxiety than kho- kho and volleyball players. The post hoc analysis proved that the difference between kho kho players and volleyball players were significant. It was also proved that there was a significant difference between kabaddi and volleyball players and kho kho and volleyball players in somatic anxiety. Table III Shows that there was exists significant mean difference exists kho-kho, kabaddi and volleyball players. The kabaddi players possess more self-confidence than kho kho and volleyball players. The post hoc analysis proved that the difference between kho kho players and volleyball players were significant.

It was also proved that there was a significant difference between kabaddi and volleyball players and kho-kho and volleyball players in self-confidence.

The subjects selected for this study were higher secondary level players and the results proved that the psychological preparation for these games differ from one another.

5. CONCLUSION

1. In the present study we concluded that there was significant difference in cognitive anxiety among Higher Secondary level kho kho, kabaddi and Volleyball players. It was concluded that volleyball players possess more cognitive anxiety than kabaddi and kho kho players.
2. In the present study we concluded that there was significant difference in somatic anxiety among Higher Secondary level kho kho, kabaddi and Volleyball players. It was concluded that kabaddi players possess more somatic anxiety than kho kho and volleyball players.
3. In the present study we concluded that there was significant difference in Self-Confidence among Higher Secondary level kho kho, kabaddi and Volleyball players.

It was concluded that kabaddi players possess more self-confidence than kho kho and volleyball players.

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A COMPARATIVE ASSESSMENT OF HEALTH STATUS OF TRIBAL ADOLESCENT BOYS OF BIHAR

Pankaj Kumar[1] & Dr. B.John[2]

Affiliations:

1. Research Scholar, Deptt. of Physical Education, Dr. CV Raman University, Kargi Road, Kota, Bilaspur (C.G.)
2. Associate Professor, Deptt. of Physical Education, Dr. CV Raman University, Kargi Road, Kota, Bilaspur (C.G.)

ABSTRACT

The aim of the present study was to comparatively assess the health status of tribal adolescent boys of Bihar. To conduct the study 200 tribal adolescent boys from Bathudi, Binjhia, Birjia and Chik Baraik tribes were selected as sample. The age range of tribal adolescent boys was 14 to 17 years. To fulfill the objectives of the present study, 200 non-tribal adolescent boys were also selected. The age range of non-tribal adolescent boys was

also from 14 to 17 years. Health status of selected adolescent boys was assessed with the help of Modified Hindi version of health status questionnaire prepared by Tata Institute of Social Sciences. Results reveal that health status of tribal adolescent boys was significantly inferior as compared to non-tribal adolescent boys. It was concluded that proper implementation of policy is need of the hour to enhance the health status of tribal adolescent boys of Bihar.

Keywords : Adolescent, Health Status, Tribal, Non-tribal

1. INTRODUCTION

Adolescence means attaining identity. It is period of brisk physical and psychological changes which starts from puberty. Every adolescent go through a phase of physical, hormonal, psychological, behavioural and social developmental changes during adolescence period. Researches in the past have shown that adolescents in India are suffering from multiple health and psychological issues ranging from tobacco and alcohol consumption, depressive and mental health issues to physical and health related issues. India has a comparatively larger proportion of adolescents in India and this is true in tribal population also. Bihar is home to Bathudi, Binjhia, Birjia and Chik Baraik tribes. Health status of an adolescent is important in a way that it determine their health even in adulthood. World Health Organization (2006) included physical, mental and social well-being in their definition of health and contended that it is not merely absence of any disease. Health status of an individual or a community can not be measured with a single standard measures. Individual health status can be assessed by registered medical practitioner. It can also be assessed by self reported questionnaire by taking opinion regarding individuals social, emotional, spiritual and physical health. A number of studies by researchers like Rao and Parthasarathy (1993), Bajpai (2001), Zahiruddin et al. (2011), Khule (2015), Agarwal et al. (2018) conducted studies to compare psychological and physical problems, prevalence of tobacco use, mental health issues between tribal and non-tribal adolescent but like other regions of India scientific data on health status of adolescent tribal boys are not available. Hence the present study was planned to comparatively assess health status of tribal adolescent boys of Bihar.

The objective of the present study was to compare health status of tribal and non-tribal adolescent boys of Bihar.

It was hypothesized that health status of non-tribal boys will be significantly superior as compared to tribal adolescent boys from Bathudi, Binjhia, Birjia and Chik Baraik tribes.

2. METHODOLOGY

2.1 Sample

To conduct the study 200 tribal adolescent boys from Bathudi, Binjhia, Birjia and Chik Baraik tribes were selected as sample. The age range of tribal adolescent boys was 14 to 17 years. From each tribe, 50 adolescent boys were selected. To fulfill the objectives of

the present study, 200 non-tribal adolescent boys were also selected. The age range of non-tribal adolescent boys was also from 14 to 17 years. Purposive sampling was used in the present study.

2.2 Instrumentation

2.2.1 Health Status Questionnaire

Health indices of the subjects was determined by Modified version of Self Assessment Questionnaire, prepared by Tata Institute of Social Sciences (2000). For the purpose of the present study, selected items of this test has been used. The higher scores in this questionnaire point toward poor health while the lower score designate good health because fewer health issues means lesser score while more health complaints means higher score and inevitably lower health status. The reliability coefficient of this questionnaire was 0.82 and validity as determined by Lawshe method was 0.92 indicating a fair reliability and validity of this questionnaire.

2.3 Procedure

First of all, 200 tribal adolescent boys between age range of 14 to 17 years were selected from Bathudi, Binjhia, Birjia and Chik Baraik tribes of Bihar respectively. To fulfill the objectives of the present study 200 non-tribal boys from Bihar were also selected. After obtaining ethical permission, self structured questionnaire was administered to each subject in a peaceful environment. They were assured that their response will only be used for research purpose only. The response of each subject was evaluated on the basis of scoring pattern. Independent sample 't' test was used to compare health status of tribal and non-tribal adolescents of Bihar. Results shown in table 1.

3. RESULT

To find out the significant difference between tribal and non-tribal adolescent boys, mean , SD and t-radio was computed and data pertaining to this has been presented in Table 1.

TABLE 1

COMPARISON OF HEALTH STATUS BETWEEN TRIBAL AND NON-TRIBAL ADOLESCENT BOYS

Variable	Study Groups				t-value
	Tribal Adolescent Boys (N=200)		Non-tribal Adolescent Boys (N=200)		
	M	S.D.	M	S.D.	
Health Status	15.62	5.05	6.27	2.29	23.81*

* Significant at .01 level

t.05 (398)=1.65

A perusal of entries reported in table 1 indicate statistical significant difference in health status of tribal and non-tribal adolescent boys of Bihar, as the obtained t-value of 23.81 was much high than the required t.05 (398)= 1.65. It reveal that health status of non-tribal adolescent boys was far superior as compared to tribal adolescent boys of Bihar. The results are interpreted as lower the mean score, better the health status.

4. DISCUSSION

Health status indicates overall wellbeing in terms of physical, emotional, behavioural, social and spiritual health. It also indicate magnitude of health problems faced by an individual. According to American Thoracic Society, health status is measured as individuals level of overall wellness as well as physical and mental illness. In the present study health status comprise factors such as physical, social and illness. So tribal adolescent boys of Bihar lack these factors.

4. CONCLUSION

On the basis of results, it may be concluded that health status of tribal adolescent boys of Bihar remains poor despite best of efforts as compared to non-tribal adolescent boys.

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EFFECT OF RESISTANCE TRAINING PLYOMETRIC TRAINING AND COMBINED TRAINING ON PHYSICAL VARIABLE AMONG KABADDI PLAYERS

Dr. I. Karikalan[1]

Affiliation:

[1] Principal, St.Johns College of Physical Education, Veeravanallur, Tirunelveli, Tamilnadu kariskabaddi@gmail.com

ABSTRACT

The purpose of the study was to find out the effect of resistance training plyometric training and combined training on Physical Variable among kabaddi players. 60 kabaddi players from Tuticorin district were selected randomly as subjects. The age of the subjects ranged from 16 to 21 years. The selected subjects were divided into three groups. Group I underwent resistance training, Group II underwent plyometric training and Group II underwent combined training. The experimental groups were training for five days a week up to six weeks. The resistance training plyometric training and combined training were selected as independent variable and the criterion variable speed was selected as dependent variables and the selected dependent variable speed was assessed by the 50 dash standardized test item. The experimental design selected for this study was pre and post test randomized design. The data were collected from each subject before and after the training period and statistically analyzed by using dependent't' test and analysis of covariance (ANCOVA). It was found that there was a significant improvement and

significant different exist due to the effect of resistance training, plyometric training, and combined training on selected physical variable among kabaddi players.
Keywords: Resistance training, Plyometric training, Speed, Kabaddi

1. INTRODUCTION

Plyometric exercise is a popular form of training used to improve athletic performance. It involves a stretch of the muscle tendon unit immediately followed by a shortening of the muscle unit. This process of muscle lengthening followed by rapid shortening during the stretch-shortening cycle (SSC) is integral to plyometric exercise. The SSC process significantly enhances the ability of the muscle-tendon unit to produce maximal force in the shortest amount of time. These benefits have prompted the use of plyometric exercise as a bridge between pure strength and sport-related power and speed (Chu 1983).

Resistance training programs have traditionally focused on developing maximal strength in individual muscles, emphasizing one plane of motion. Because all muscles function eccentrically, isometrically, and concentrically in all three planes of motion at different speeds, training programs should be designed using a progressive approach that emphasizes the appropriate exercise selection, all muscle actions, and repetition tempos.

Kabaddi is basically an outdoor team game, played in the tropical countries of Asia. This indigenous game of India was adopted by other countries in Asia viz. Pakistan, Nepal, Bhutan, Bangladesh, Sri Lanka, Maldives, Malaysia and more recently by Japan and China. The excitement and thrill provided by the game has made it very popular and Kabaddi is rightly called the 'Game of the masses', since spectators totally involve themselves and give the players a great deal of encouragement.

2. METHODOLOGY

2.1 Sample

For this study sixty (N=60) men Kabaddi players from Tuticorin District, Tamilnadu India were randomly selected as subjects. Their age ranged from 16 to 21 years.

2.2 Research Design

The experimental design used in this study was random group design. The subjects were divided at random into three groups of twenty each (n=20). Group-I underwent Resistance Training, Group-II underwent Plyometric Training, Group-III underwent Combined Resistance Training and Plyometric Training.

2.3 Data Collection

All the subjects were thoroughly informed regarding the nature of the experimental methodology and the subjects consented to participate in this investigation. Pretest data were collected two days before the training programme, and posttest data were collected immediately after six weeks of the training session.

2.4 Statistical Analysis

The data collected data from the three groups prior to and immediately after the training programme on the selected criterion variables were statistically analyzed with dependent 't' test and Analysis of Covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, Scheffe's test as a post hoc test was

applied. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

3. RESULTS AND DISCUSSION

Table1 presents per and post test means, standard deviations and dependent 't' test values on speed of experimental and control groups.

TABLE 1
MEANS, STANDARD DEVIATION AND DEPENDENT 't' TEST VALUES ON SPEED AMONG EXPERIMENTAL GROUPS

Tests	Resistance Training		Plyometric Training		Combined Training	
	Mean	SD	Mean	SD	Mean	SD
Pre Test	6.68	0.16	6.62	0.12	6.63	0.11
Post Test	6.32	0.20	6.09	0.15	5.83	0.11
T - Test	27.954*		15.20*		69.65*	

*Significant at .05 level.
t. 05 (19) = 2.09

From table 1, the obtained t- test value of resistance training, plyometric training and combined training groups are 15.98, 19.00 and 15.07 respectively which are greater than tabulated t- value of 2.14 with df 19 at .05 level of confidence. This means that the resistance training, plyometric training and combined training groups had effects on participants' speed.

TABLE 2
ANALYSIS OF COVARIANCE OF EXPERIMENTAL GROUPS ON SPEED

Adjusted Post Test Means							F ratio
Resistance training	Plyometric Training	Combined Training	Sources of variance	sum of square	df	Mean squares	91.76*
6.28	6.11	5.85	Between	1.87	2	0.93	
			within	0.57	57	0.01	

*Significant at .05 level.
F.05 (2 , 57) = 3.15.

From table 1, The obtained F ratio value is 91.76, which is higher than the table value 3.15. with df 2 and 57 required for significance at .05 level. Since the value of F-ratio higher than the table value, it indicates that there was significant difference among the adjusted post test means of Resistance Training, Plyometric Training, and Combined Training. To find out this of the three paired means had a significant difference.

4. CONCLUSIONS

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

1. The Experimental groups namely, Resistance training, Plyometric training and combined Resistance and Plyometric training had significantly improved on Speed among district level Kabaddi players.
2. The combined group of resistance and plyometric training group had shown significant improvement on speed among district level Kabaddi players.

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RELATIONSHIP BETWEEN BODY MASS INDEX AND HEALTH RELATED PHYSICAL FITNESS IN MALE CHILDREN OF TRIBAL REGION

Dr. Rajkumr Sharma[1] & Dr. Ashish Kumar Nigam[2]

Affiliations:

1. Chief Coach Gymnastic, Sports Authority of India, STC ext. Dhar, Malhar Ashram, Indore (M.P.)
2. Sports Officer, Office of DSW, JNKVV, Jabalpur (M.P.) Mobile- 9826348748

ABSTRACT

The purpose of present study was to investigate the correlation between BMI and four components of Health Related Physical Fitness (H.R.P.F) in male children of tribal region in Chhattisgarh. The study was conducted on a cross sectional sample of 437 male children into seven age groups i. e. 12 (N=63), 13(N=59),, 14(N=63),. 15(N=63),, 16(N=63),, 17(N=63) and 18(N=63) years belong to middle (N=215) and higher secondary (N=222) schools. In order to find out the relationship between BMI and health-related physical fitness on its four components of male school children ranging between twelve to eighteen years of age, means, standard deviations and Pearson Moment Coefficient Correlation were computed. The results of the investigation revealed the positive correlation between BMI and abdominal strength of male school children in age of twelve, thirteen, sixteen to eighteen years and negative correlation in fourteen and fifteen years of age. BMI directly correlated with the cardiovascular function in age of thirteen, fifteen and sixteen years and inversely correlated in twelve, fourteen, seventeen and eighteen years of age. BMI positively correlated with flexibility of back and hamstring muscles with advancement of age except in fifteen years of age group children. BMI positively correlated with the body composition with advancement of age except in seventeen and eighteen years of age.

Keynotes: BMI, Children, Physical Fitness, flexibility, strength, health

1. INTRODUCTION

Body Mass Index (BMI) is a easy and best tool to monitor the status of weight of a person. This tool is always used for the classification of humans in relation to their health

as underweight, normal weight, overweight and obese (WHO, 1995). An application in sport has been questioned, because it is associated with fat mass, as well as with fat free mass (Ode , et.al., 2007). It can also evaluate the athlete's body weight for a given stature and thus contribute to weight control.

The ratio of weight to squared height is expressed in the form of Body Mass Index (BMI), which indicates the health risk among human being. The indices of fatness measured through waist circumference, waist to hip ratio and waist to height ratio. which is recommended by the World Health Organization (WHO, 2011).

According to the University of Maryland Medical System, the lower waist- hip ratio is better and a wider at the waist (apple-shaped body) is likely to be more inclined to health problems than a wider at the hips. WHR ratio of 0.9 or less is considered safe and a ratio of 1.0 or higher is considered at risk for overweight-associated health problems. It is a useful measure of fat distribution.

Several investigations have been conducted to determining the relationship between BMI and health related physical fitness of children: Srivastava, Dhar, Malhotra (2013) concluded that Fitness capacity decreased progressively as the BMI increased. Al-Asiri1 and Shaheen (2015) indicated that the higher body mass indexes were generally associated with lower HRPF, but effects varied with age. Mak et. al. (2010) expressed that the relations between BMI and health-related physical fitness in adolescents were non-linear. Different aspects of health-related physical fitness may serve as indicators of health hazards for underweight and overweight adolescents. Aboshkair et. al. (2012) found the positive relationship between health related physical fitness , BMI, and physical activity among children in Selangor, Malaysia. Pereira, et.al. (2011) suggested that the health-related physical fitness is considered to be an indirect marker of a person's health and wellbeing, reflecting the systems and body functions of many persons. Huang and Malina (2010) found that the relationship between BMI and fitness varied among tests. Lower fitness in sit-ups, jump, distance run was evident in male and female children with higher BMI in each age group. Shang, ei.al. (2010) identified an inverse association of obesity with cardio-respiratory fitness, muscle explosive strength, and speed among Chinese children. Casonatto et. al. (2015) concluded that the poor physical performance in the tests measuring cardio-respiratory fitness and muscular strength/ endurance was associated with obesity among both sexes. The findings of Liao et. al. (2013) suggested that cardio-respiratory fitness and lower body explosive strength are associated with childhood and adolescent obesity Gontarev and Ruzdija (2015), indicated that the children of both sexes, who have moderate or excessive overweight show lower results in long jump, pull-ups, running 4 x 10 meters tests and similar in flexibility with respondents who have normal body weight. Saghand, and Gholam, (2013) expressed that the cardio-respiratory fitness and abdominal endurance were found to have negative relationship with body composition. Body composition can indirectly indicate the level of certain physical fitness factors. Ding, et. al. (1990) and Kovács, et.al. (2009) reported that overweight and obesity reduced the physical working capacity of a human, which is the indication of reduced health-related physical fitness i. e. cardio-respiratory fitness and speed of movement. Ara, et.al. (2007); Lee, et.al. (2007) & Winsley, et.al. (2006) shown that the overweight persons have given the worst performance in physical fitness tests. They have also observed negative correlation between health -related physical fitness and obesity.

Many of researchers from India have been conducted studies on physical growth and development patterns among different populations of children (Vijayraghavan, Singh and Swaminathan**,** 1971; Khanduja Aggarwal, and Taneja, 1967; Singh and Meenakshi, 1969; Mehta and Merchant, 1972; Kansal, 1981; Verma, 1983; Kumar and Bhalla, 1988; Chatterjee and Mandal, 1994; Joshi, 1996; Kumar, 2001).

Obesity increases the risk for many chronic diseases among human beings. Waist to hip ratio is an important tool to determine the overall health risk. The more weight around their waist is related to heart disease and diabetes than those with weight around their hips. One of the simplest method of measuring body fatness is calculating waist- hip ratio or relationship between waist circumference and hip circumference.

The effects of overweight on health-related physical fitness appear different with the component of fitness being examined. Compared with normal weight, overweight adolescents were found to have very poor performance in muscular endurance as measured by sit-up (Deforche, et.al. 2003), cardiovascular fitness measured by endurance run (Kim, et. al. 2005; Lloyd, et. al. 2003). But similar flexibility was measured by sit-and-reach (Chen, et. al. 2002; Chen, et. al. 2006) and even better isometric strength as measured by handgrip test (Artero, et. al. 2009).

To establish the relationship between BMI and health related physical fitness and measured by valid and reliable tests, will provide key information to reduce the prevalence of health risk factors among children. However, relatively few studies deals with HRPF components across a broad range of BMI in children and adolescents. Very few studies have been conducted on the relationship between body composition and health related physical fitness factors in India. So, the purpose of the study was to investigate the relationship between BMI and and four components of health related physical fitness (HRPF) in male children of tribal region of Chhattisgarh

2. METHODOLOGY

2.1 Selection of Sample:

The study has been conducted on a cross sectional sample of 437 male children into seven age groups i. e. 12 (N=63), 13(N=59),, 14(N=63),. 15(N=63),, 16(N=63),, 17(N=63) and 18(N=63) years belong to middle (N=215) and higher secondary (N=222) schools. The random sampling method was employed for the purpose of data collection from various schools of tribal region in Sarguja division of Chhattisgarh.

2.2 Criterion Measure

Standing height was measured with anthropometric rod for the standing posture to the nearest 0.5 cm. Weight was measured to the nearest 0.1 kg by using portable digital weighing machine The ratio of weight to squared height in meters is expressed in the form of Body Mass Index (BMI = kg/m2).

2.3 Instrumentation

Height

Purpose: Measurement of standing height. Equipment: Height Measuring Stand. Procedure: The subject stands erect bare-footed with heels and back of the head touching the stands. The flat card-board is put up on the top of the head for measurement of height of the respondent. Scoring: The measurement is taken to the nearest centimeter.

Weight

Purpose: Assessment of weight. Equipment: Weighing Machine. Procedure: The subject will stand on the platform of the weighing Machine with foot parallel. Weight will be equally distributed on the foot. Minimum cloth will be wear by the respondent, likes vest and short. Scoring: Weight of the subject is recorded in Kg by Researcher.

Sit and reach test

Purpose: Evaluation of flexibility of the low back and posterior thighs. Equipment: 12x12 inches box made up by ¾ inch plywood with a scale marked at the top of the box which extended an additional 9 inches (21 inches over all). Procedure: The subjects were asked to remove their shoes and place his feet with straight knees against the testing box in sitting position on floor. The tips of the finger of the subject were on the edge of the top of box. The subject was instructed to lean forward and slide his hand along the measuring scale as far as possible without bouncing and to hold this position for one second. Scoring: Each subject was given three trials and the best lean forward was recorded as score in cm. To obtain the flexibility scores, 9 inches was subtracted from the recorded reading.

Modified Sit-ups

Purpose: To evaluate abdominal strength/endurance. Equipment: Stop watch, Mat Procedure: The instructions were given to the respondents to keep their arms across the chest in sitting position until their elbows touched their thighs. The maximum number of sit-ups performed in one minute was recorded in a one trial only.

1.5 mile run/walk

Purpose: To measure cardio-respiratory endurance. Equipment: 1.5 mile run can in 400 meter or 200 meter track area.. Procedure: Respondents are instructed to run as fast as possible. The respondents begin on signal, "ready, start" as they cross the finish line, time taken in whole run should be announced. Scoring: The time is recorded in one-mile run to the nearest of a second.

2.4 Statistical Analysis:

To establish the relationship between BMI and Health-related physical fitness parameters and anthropometric characteristics of male school children, means standard deviations and Pearson Moment Correlation Coefficients were computed. For the computation of collected data, SPSS software 16.0 was used.

3. RESULTS

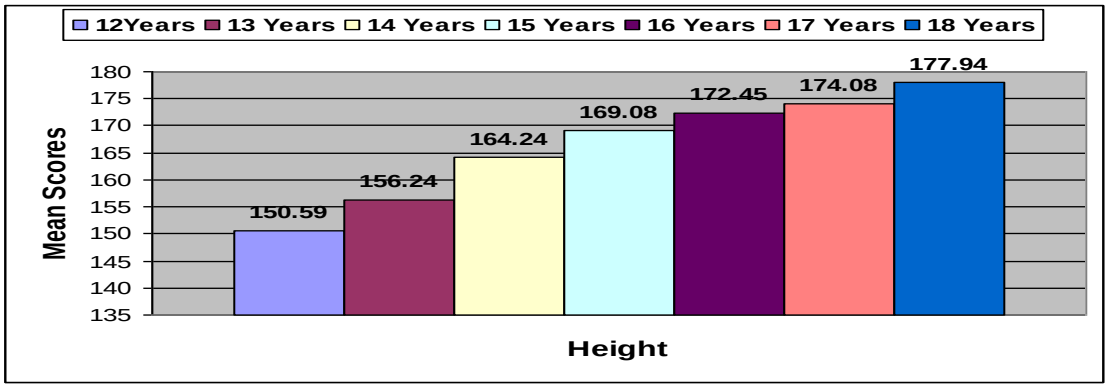
In order to find out the relationship between BMI and health-related physical fitness on its four components of male school children ranging between twelve to eighteen years of age, means, standard deviations and Pearson Moment Correlation Coefficients were computed. The results of the statistical analysis of data have been presented in table 1 and 3 and depicted in figure 1 to 4.

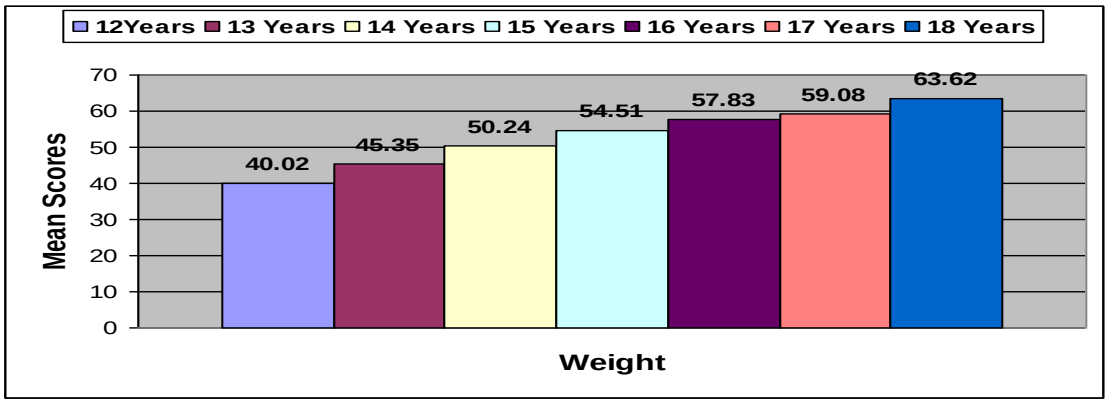
TABLE 1
DESCRIPTIVE STATISTICS OF ANTHROPOMETRIC CHARACTERISTICS OF MALE SCHOOL CHILDREN

Age (years)	Frequency	Height (cm.)	Weight (kg.)	BMI (kg/m2)	Body Composition
12	63	150.59 ±4.17	40.02 ±1.04	17.78 ±2.26	09.19 ±1.57
13	59	156.24 ±3.61	45.35 ±1.83	18.66 ±2.99	09.25 ±1.83

14	63	164.24 ±4.35	50.24 ±1.67	18.89 ±2.01	10.00 ±1.83
15	63	169.08 ±2.51	54.51 ±2.97	19.09 ±2.00	10.87±1.49
16	63	172.45 ±4.23	57.83 ±2.68	19.43 ±2.65	11.19 ±1.63
17	63	174.08 ±5.75	59.08 ±2.25	19.70 ±1.48	11.79 ±2.64
18	63	177.94±5.56	63.62 ±2.25	20.78 ±1.96	12.37 ±2.13

The mean scores of male school children ranging between twelve to eighteen years of age on different anthropometric characteristics have been depicted in figure 1 to 4.





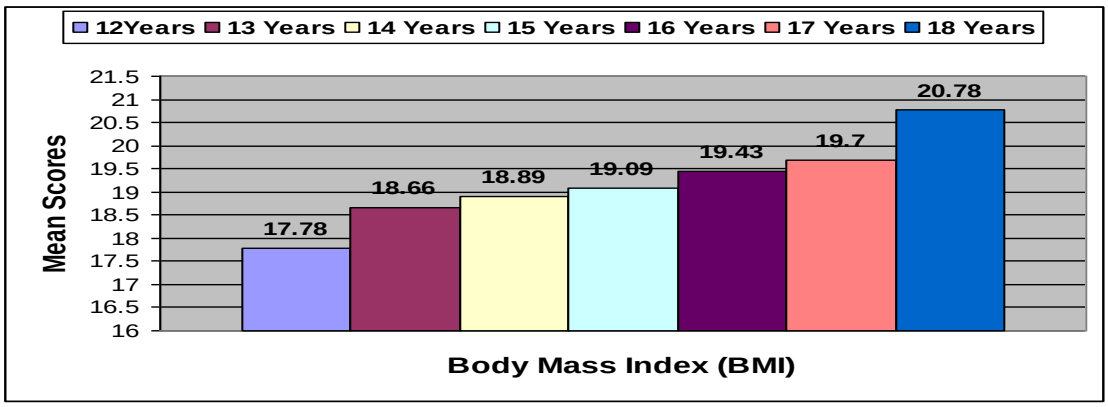
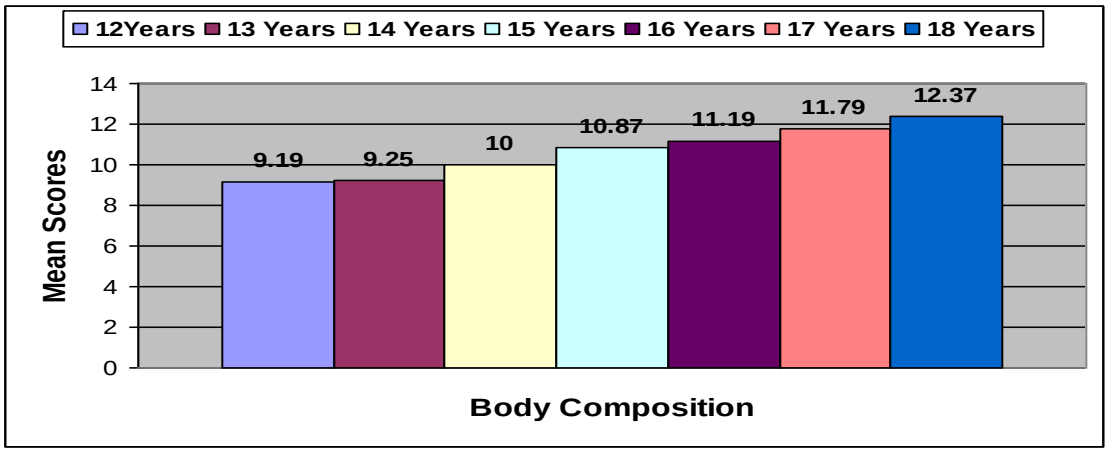
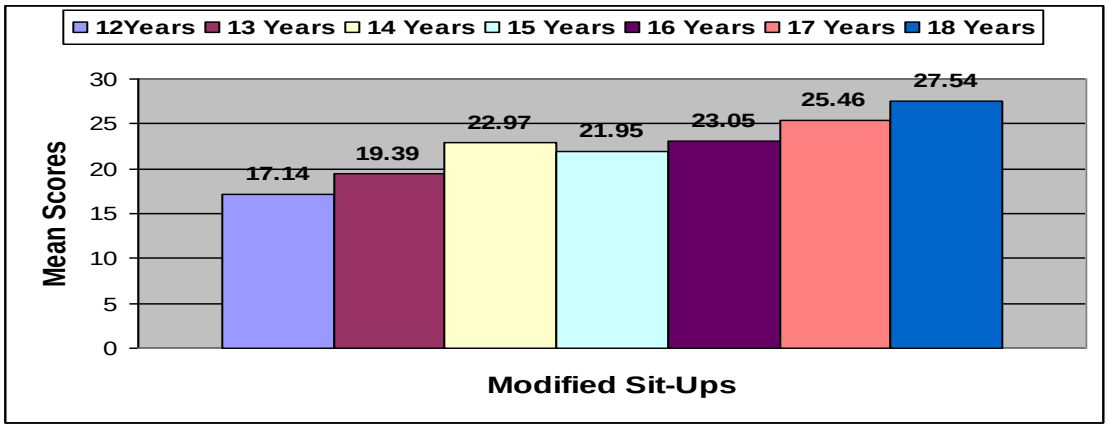


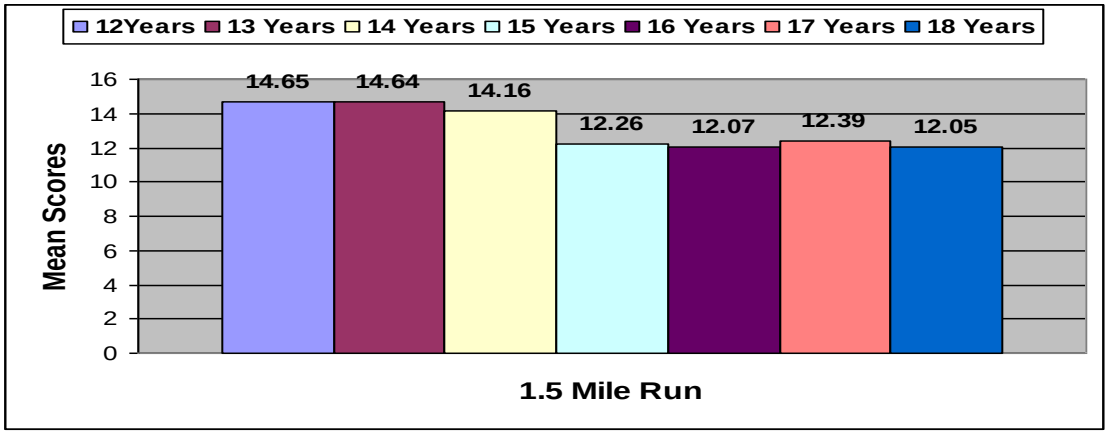
TABLE 2
MEANS AND STANDARD DEVIATIONS OF HEALTH-RELATED PHYSICAL FITNESS IN SCHOOL CHILDREN

Age (Years)	**Frequency** (Subject)	**Modified Sit-Ups** (Numbers)	**1.5 mile Run** (Minute-Second)	**Sit and Reach** (cm.)
12	63	17.14 ±4.24	14.65 ±1.36	26.88 ±4.56
13	59	19.39 ±6.24	14.64 ±1.71	28.04 ±4.70
14	63	22.97 ±5.87	14.16 ±1.81	30.19 ±5.26
15	63	21.95 ±5.74	12.26 ±1.80	24.98 ±5.62
16	63	23.05 ±6.58	12.07±0.98	29.22 ±8.45
17	63	25.46 ±6.46	12.39 ±1.23	30.25 ±8.00
18	63	27.54 ±6.33	12.05 ±1.51	33.74 ±5.91

The mean scores of male school children ranging between twelve to eighteen years of age on different components of health-related physical fitness have been depicted in figure 5 to 8.







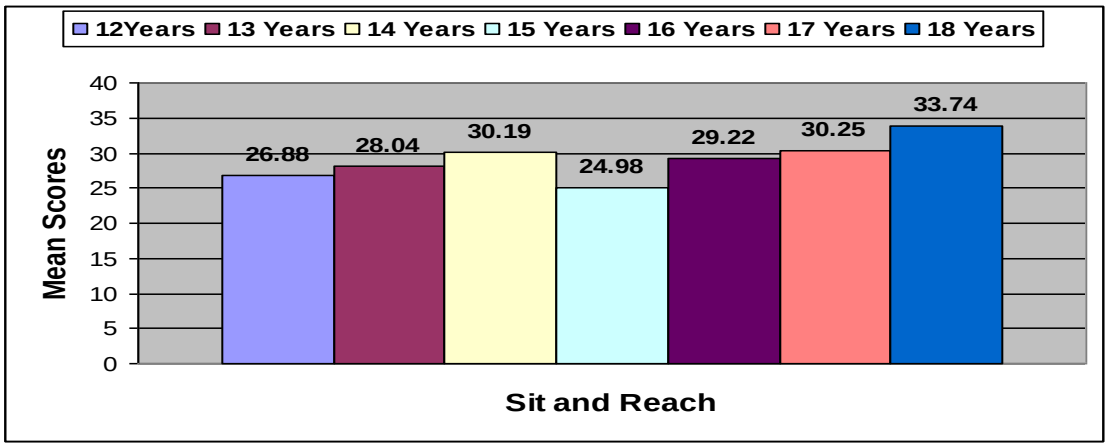


TABLE 3

RELATIONSHIP BETWEEN BODY MASS INDEX AND HEALTH RELATED PHYSICAL FITNESS COMPONENTS IN MALE CHILDREN AT DIFFERENT AGES

	Age (Years)						
Fitness Components	**12 years**	**13 years**	**14 years**	**15 years**	**16 years**	**17 years**	**18 years**
Modified Sit-Ups	.148	.127	-.031	-.226	.029	.167	.082
1.5 mile Run	-.168	.253	-.013	.062	.049	-.022	-.189
Sit and Reach	.183	.127	.058	-.148	.009	.041	.052
Body Composition	.121	.074	.099	.351	.091	-.058	-.047

The relationship between BMI and the health related physical fitness parameters of male school children are summarized in Table 3. BMI directly correlated with the abdominal strength and endurance in age of twelve, thirteen, sixteen to eighteen years and inversely correlated in fourteen and fifteen years of age. BMI directly correlated with the cardiovascular function in age of thirteen, fifteen an sixteen years and inversely correlated in twelve, fourteen, seventeen and eighteen years of age. BMI directly correlated with the flexibility in age of twelve to eighteen years except fifteen years of age. BMI positively correlated with the body composition in age of twelve to sixteen years of age and inversely correlated in seventeen and eighteen years of age

4. DISCUSSION

Body Mass Index (BMI) is widely used as a predictor of obesity, which has been linked to serious health risks, such as developing hypertension, high cholesterol, diabetes and cardiovascular disease (Williford & Russell, 2011; Mazic, et.al. 2009; Ode et.al. 2007). One limitation of BMI is that it does not directly measure body composition (water, muscle, bone and adipose tissue within the body) (Nevill , et.al. 2012; Pontaga & Zidens, 2011; Wellens, et.al. 1996). Since BMI does not measure body composition there have been some concerns that BMI may misclassify different groups of people as overweight or obese, especially those with a greater composition of muscle and bone mass (Witt & Bush, 2005).

The present research showed that, BMI is positively correlated with the abdominal endurance in age of twelve, thirteen, sixteen to eighteen years and inversely correlated in fourteen and fifteen years of age. This study was partially supported by Brunet et al. (2007), Esco et al. (2010) and Huang and Malina (2010), as they expressed that BMI is negatively associated with sit-up performance of adolescence children. BMI is positively correlated with the cardiovascular function in age of thirteen, fifteen an sixteen years and negatively correlated in twelve, fourteen, seventeen and eighteen years of age. BMI is positively correlated with the flexibility in age of twelve to eighteen years except fifteen years of age.. This study was supported by Huang and Malina (2010), as, they reported a positive relationship between BMI and flexibility. .Further, Malina et al. (1995) reported a significant negative relationship between obesity and flexibility. BMI positively correlated with the body composition in age of twelve to sixteen years of age and inversely correlated in seventeen and eighteen years of age

5. CONCLUSIONS

1. BMI directly correlated with the abdominal strength of male school children in age of twelve, thirteen, sixteen to eighteen years and inversely correlated in fourteen and fifteen years of age.
2. BMI directly correlated with the cardiovascular function in age of thirteen, fifteen and sixteen years and inversely correlated in twelve, fourteen, seventeen and eighteen years of age.
3. BMI directly correlated with the flexibility of back and hamstring muscles with advancement of age except in fifteen years of age group children.
4. BMI positively correlated with the body composition with advancement of age except in seventeen and eighteen years of age

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EVALUATION OF HEALTH STATUS OF TRIBAL ADOLESCENT GIRLS OF BIHAR: WITH SPECIAL REFERENCE TO BATHUDI, BINJHIA, BIRJIA AND CHIK BARAIK TRIBES

Pankaj Kumar [1] & Dr. B.John[2]

Affiliations:

[1] Research Scholar, Deptt. of Physical Education, Dr. CV Raman University, Kargi Road, Kota, Bilaspur (C.G.)
[2] Associate Professor, Deptt. of Physical Education, Dr. CV Raman University, Kargi Road, Kota, Bilaspur (C.G.)

ABSTRACT

Present study comparatively evaluated the health status of tribal adolescent girls belonging to Bathudi, Binjhia, Birjia and Chik Baraik tribes. 200 tribal adolescent girls with age ranging from 14 to 17 years were selected as sample. 50 tribal adolescent girls from each tribe were selected purposively. Control group consists of 200 non-tribal adolescent girls of same age group. To assess health status, modified version of health status questionnaire prepared by Tata Institute of Social Sciences was used. This reliable and valid questionnaire was in Hindi. The statistical tool used for comparison was independent sample 't' test. Comparison reveals that health status of tribal adolescent girls was significantly lower as compared to non-tribal adolescent girls. It was concluded that spiritual, social, psychological and physical health of tribal adolescent girls of Bihar still remains poor as compared to non-tribal adolescent girls despite best of efforts.

Keywords : Adolescent girls, Health Status, Tribal, Non-tribal

1. INTRODUCTION

The social and cultural map of Bihar is represented by tribes. Although Santhal tribe has moved to Jharkhand after 2000 there are still tribes like Bathudi, Binjhia, Birjia and Chik Baraik tribes in Bihar. Bathudi Tribe is among the most significant tribes left in Bihar. Artistic qualities are associated with Bahudi tribes while Binjhia tribe is associated with culture and heritage. Birjia is the largest tribe of bihar while Chik Baraik tribe has some unique features associated with them. In terms of population, Bihar stands in third place with 1.3 percent of its population is scheduled tribe. To improve socio-economic status and health related issues of tribal people it is necessary to have proper knowledge of their health status. This is important because health status conveys overall physical, social and mental wellbeing. National Health Policy, 1983 extended high priority to organized health services to tribal areas with an aim to eradicate endemic diseases yet the situation is still poor in terms of health care facilities in tribal areas. The comparative knowledge of health status of adolescent girls of these tribes of Bihar is even more necessary because it will be beneficial to policy makers to chalk out a proper policy towards health of an adolescent. In a number of studies health status of tribals in India has been assessed. Health status and its allied areas among tribal population in India has been scientifically studied by Balgir (2004), Bose and Chakraborty (2005), Bhagat et al. (2012), Mishra (2012), Venugopal and Ashok (2012), Narayannappa et al. (2015), Agarwal et al. (2018) but

surprisingly health status of tribal adolescent girls belonging to Bathudi, Binjhia, Birjia and Chik Baraik tribes has not been studied comparatively so far. Hence the present study was planned.

The objective of the present study was to comparatively evaluate health status of tribal and non-tribal adolescent girls. It was also hypothesized that non-tribal adolescent girls will have significantly better health status as compared to adolescent girls from tribal origin.

2. METHODOLOGY

2.1 Sample

To conduct the study 200 tribal adolescent girls with age ranging from 14 to 17 years were selected as sample. 50 tribal adolescent girls from each tribe i.e. Bathudi, Binjhia, Birjia and Chik Baraik tribes were selected purposively. Control group consists of 200 non-tribal adolescent girls of same age group. Purposive sampling was used in the present study.

2.2 Instrumentation

2.2.1 Health Status Questionnaire :

To assess health status, modified version of health status questionnaire prepared by Tata Institute of Social Sciences was used. This reliable and valid questionnaire was in Hindi. Lower the scores in this questionnaire indicate better health status as per the items of this questionnaire. The reliability coefficient of this questionnaire was 0.82 and validity as determined by Lawshe method was 0.92 indicating a fair reliability and validity of this questionnaire.

2.3 Procedure

200 adolescent girls from Bathudi, Binjhia, Birjia and Chik Baraik tribes of Bihar were selected as sample while the control group makes up of 200 non tribal adolescent girls. The range range of subjects was 14 to 17 years. A written consent was obtained from school authorities and parents of the subjects before administration of health status questionnaire. The administration of health status questionnaire was done in a quiet and comfortable manner.

2.4 Statistical Analysis

The response given by the subjects was tabulated as per scoring key. The comparative statistics was calculated with the help of independent sample 't' test. The results are shown in table 1.

3. RESULT

TABLE 1
COMPARISON OF HEALTH STATUS BETWEEN TRIBAL AND NON-TRIBAL ADOLESCENT GIRLS

Variable	Study Groups		t-ratio
	Tribal Adolescent Girls (N=200)	Non-tribal Adolescent Girls (N=200)	

	M	S.D.	M	S.D.	
Health Status	15.95	6.07	6.37	2.31	20.82*

* Significant at .01 level

A perusal of entries reported in table 1 indicate health status of tribal and non-tribal adolescent girls of Bihar differ significantly with each other. The reported t=20.82 reveal that health status of non-tribal adolescent girls was much more sound as compared to tribal adolescent girls of Bihar. The results are interpreted as lower the mean score, better the health status.

4. DISCUSSION

Health is one among many essential indicators of social development. Health of tribal people is the sensitivity and formation in their own cultural system with less awareness of the modern health care and health sources. This may be the reason that health status of tribal adolescent girls of Bihar is inferior as compared to non-tribal adolescent girls despite sustained efforts from government and other agencies working in the field of health care.

5. CONCLUSION

On the basis of results, it may be concluded that spiritual, social, psychological and physical health i.e. overall health status of tribal adolescent girls of Bihar still remains poor as compared to non-tribal adolescent girls.

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INVESTIGATION OF FEAR OF FAILURE AMONG JUNIOR NATIONAL LEVEL BOYS AND GIRLS MALLAKHAMB PLAYERS

Ajay Singh Hazari [1], Dr. Manoj Kumar Pathak[2] & Dr. Rajkumar Sharma

1. Ph. D Research Scholar, Rabindranath Tagore University Bhopal (M.P.)
2. Director and Head, Physical Education, Rabindranath Tagore University Bhopal (M.P.)
3. Chief Coach Gymnastic, Sports Authority of India, STC ext. Dhar, Malhar Ashram, Indore (M.P.)

ABSTRACT

The Purpose of the study was to compare the fear of failure the between junior national level boys and girls Mallakhamb players . The sample consisted of fifty nine junior national (Thirty four boys under 18 years of age and Twenty five Girls under 16 year of age) level mallakhamb players who participated in 30th junior national Mallakhamb Championships held at Ujjain (M.P.) in the year February, 2017. The fear of failure questionnaire (FOFQ) consisting of 48 items and constructed by Shukla (2015) was used for the purpose of data collection. To assess the fear of failure of junior national level boys and girls on six dimensions of Fear of failure, mean, standard deviation and t-ratio were computed. Statistical analysis of data indicated the significant difference between boys and girls malakhamb players in their coping strategies dimension of fear of failure. But they had similarity in their goal setting, self adequacy, uncertain future, self control, and self evaluation dimensions of fear of failure.

Keywords: Junior national, Boys, Girls, Mallakhamb, Fear of Failure

1. INTRODUCTION

Research in sport psychology in order to improve athletic performance has been used for many years in other countries. In the United States we are basically just beginning to aid the coach in making valid and reliable decisions concerning athletic performance, yet much of the research may be labeled theoretical or simply a study for its own sake, as compared to practical or applied research applicable *or* utilization by coaches. Undoubtedly a number of individuals, including many coaches, look, at much theoretical research as practically useless and not directly applicable to their purposes (Donald, Fuoss and Tropmann, 1985).

Children and youth who have high perceptions of competence are likely to have experienced a reasonable amount of success and received positive reinforcement or approval for their efforts. Based on these experiences, they should not have strong beliefs about the likelihood of aversive consequences of failing. In contrast, youth who have lower perceptions of their competence in swimming may not have had as much success and may have experienced more aversive consequences of failing (e.g., disapproval, criticism and punishment). Given that both a perceived lack of competence (in the physical domain) and a fear of failing (in general) indicate or involve a deficient self-concept for youth who are active in sports.

Failure is known as the state or condition of not meeting a desirable or intended objective, and may be viewed as the opposite of success. Loss or failure is something that is looked down upon and sportspersons begin to fear it even at a young age.

Fear of failure may be on account of the athlete setting an internal standard for themselves and if the bar is set too high or there exists a belief that they will be unable to reach that standard, a fear of failure might prevail. Athletes generate a fear of failure when

they worry about not achieving what they have worked hard to obtain. This is based largely on the corresponding thoughts and feelings they have attached to the consequences of failure.

Fear of failure is a motive deeply rooted in self-evaluative disposition that is socialized during childhood, specifically between the ages 5 and 10 years (Atkinson, 1957; McClelland, 1958). Scant research that has been conducted on fear of failure origins seems to suggest that it is rooted in parental socialization and parent-child relations (McGregor & Elliot, 2005).

Fear of failure is conceptualized as the tendency to appraise threat to the achievement of personally meaningful goals when one fails in the performance. Individuals high in fear of failure have learnt to associate failure with aversive consequences and typically perceive failure in evaluative situations as threatening, and believe that aversive consequences will occur after failure (Conroy, Willow, & Metzler, 2002). This recent multidimensional model of fear of failure was based on the cognitive motivational relational theory of emotion (Lazarus, 1991) and is generally consistent with other multidimensional models of fear of failure (e.g., Birney, Burdick, & Teevan, 1969).

2. MEHODOLOGY

2.1 Selection of Subjects

The sample consisted of fifty nine junior national (Thirty four boys under 18 years of age and Twenty five Girls under 16 year of age) level mallakhamb players who participated in 30th junior national Mallakhamb Championships held at Ujjain (M.P.) in the year February, 2017.

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 of junior national level boys and girls on six dimensions of Fear of failure, mean, standard deviation and t-ratio were computed.

3. RESULTS

To find out the significance of difference between means of six dimensions of fear of failure of boys and girls Mallakhamb players, mean, SD and t-ratio were computed and data pertaining to this has been presented in Table 1 to 2 and depicted in figure 1 to 6.

TABLE 1

DESCRIPTIVE STATISTICS OF VARIOUS DIMENSIONS OF FEAR OF FAILURE OF JUNIOR NATIONAL LEVEL BOYS AND GIRLS MALLAKHAMB PLAYERS

Dimensions Of Fear of Failure	Boys (N=34) M±SD	**Girls (N=25)** M±SD
Goal Setting	14.41±4.001	13.80±2.533
Self Adequacy	18.09±3.078	18.84±3.300
Uncertain Future	15.03±3.050	16.52±4.204

Self Control	13.44±2.402	13.88±2.386
Self Evaluation	11.53±3.510	11.64±2.675
Coping Strategies	10.97±3.080	13.52±2.940

The mean scores of six dimensions of fear of failure as exhibited by junior national level boys and girls Mallakhamb players have been depicted in figures 1 to 6

FIGURE 1

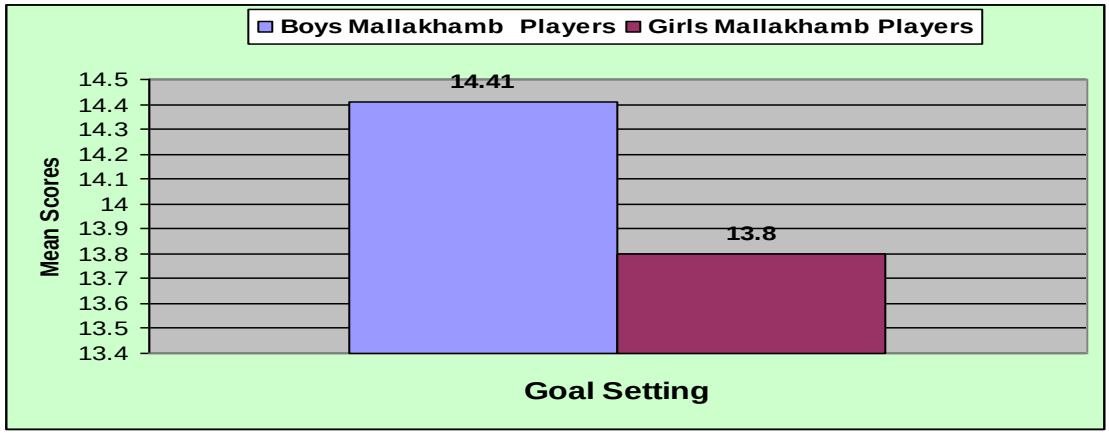

FIGURE 2

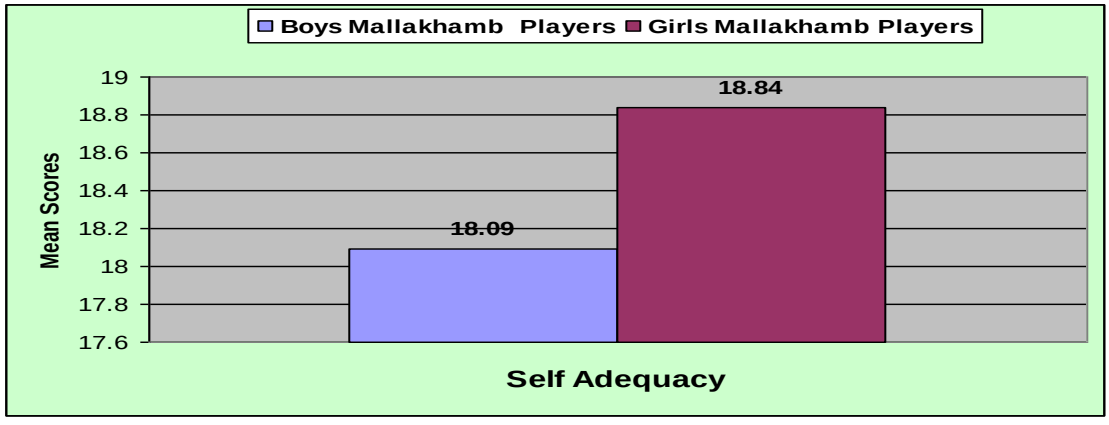

FIGURE 3

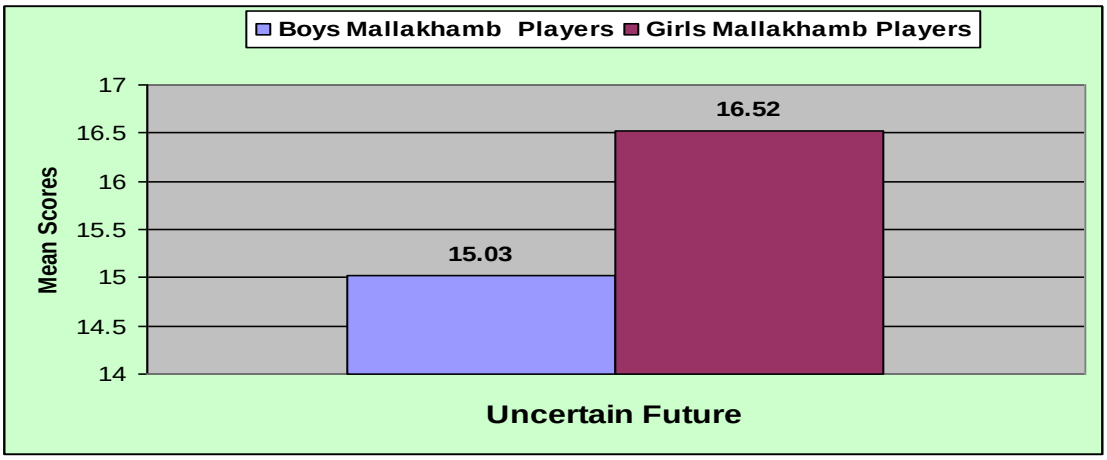

FIGURE 4

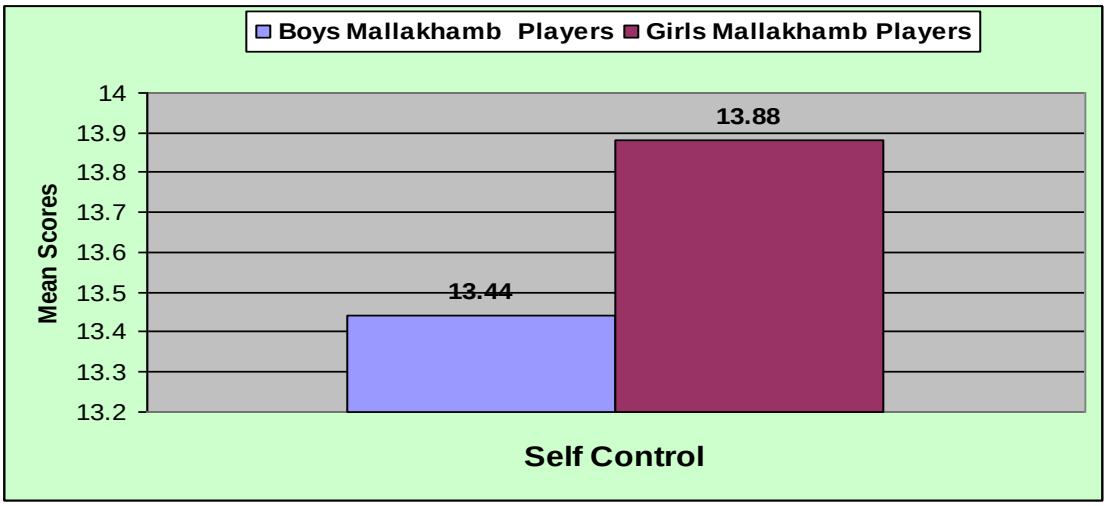

FIGURE 5

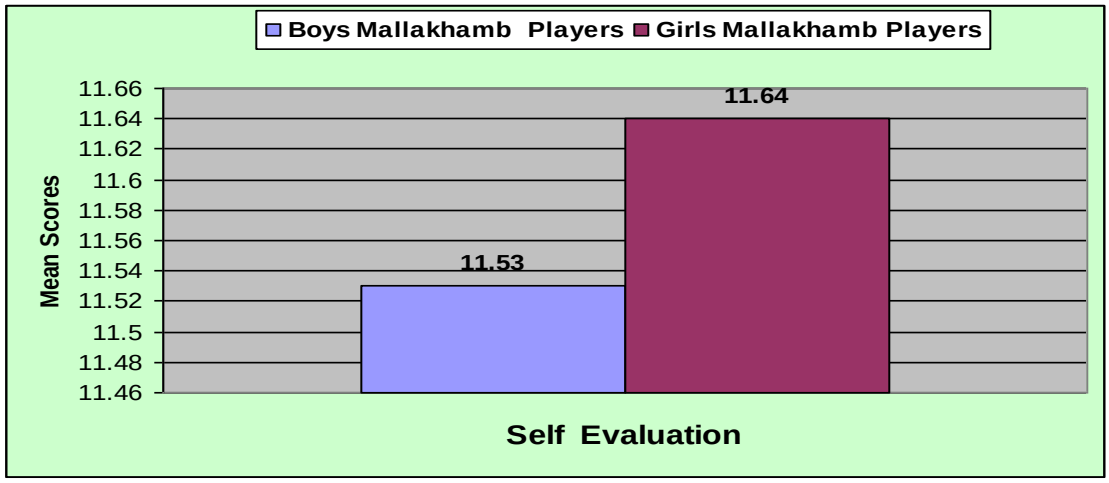

FIGURE 6

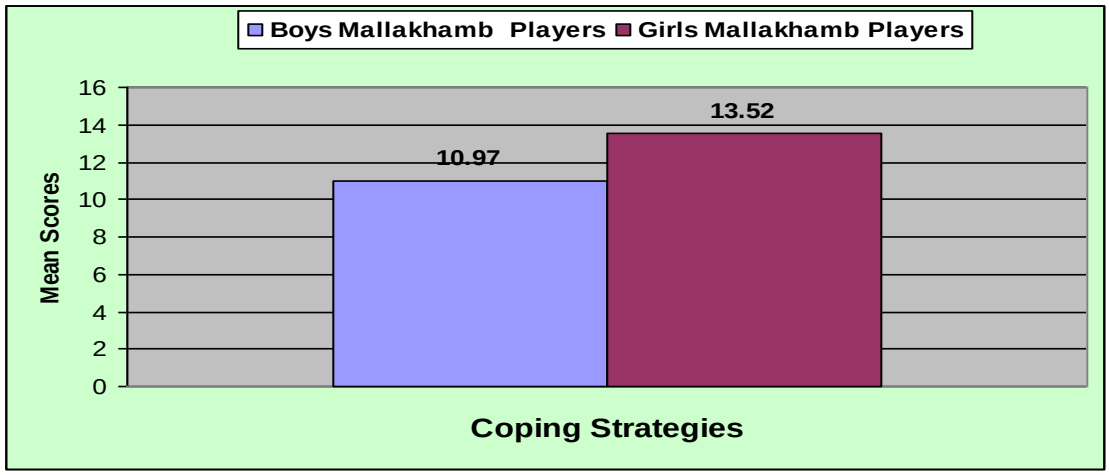

TABLE 2
SIGNIFICANCE OF DIFFERENCES BETWEEN MEAN SCORES OF JUNIOR NATIONAL LEVEL BOYS AND GIRLS MALLAKHAMB PLAYERS ON SIX DIMENSIONS OF FEAR OF FAILUR

Dimensions of Fear of Failure	Sex	Mean	MD	σ DM	t-ratio
Goal Setting	Boys Girls	14.41 13.80	0.61	0.911	0.669
Self Adequacy	Boys Girls	18.09 18.84	0.75	0.836	0.897
Uncertain Future	Boys Girls	15.03 16.52	1.49	0.944	1.578
Self Control	Boys Girls	13.44 13.83	0.39	0.631	0.618
Self Evaluation	Boys Girls	11.53 11.64	0.11	0.839	0.131

Coping Strategies	Boys Girls	10.97 13.52	2.55	0.797	3.200*

* Significant at .05 level,
t .05 (57) = 2.00

From Table 2, it is evident that junior national level boys and girls Mallakhamb players differ significantly in their coping strategies dimension of fear of failure only, as the obtained t-value of 3.200 was higher than the required t .05 (57) = 2.00. But they did not differ significantly in their goal setting, self adequacy, uncertain future, self control, and self evaluation dimensions of fear of failure, as the obtained t-values. of 0.669, 0.897, 1.578, 0.618, and 0.131 respectively were less than the required t .05 (57) = 2.00.

4. DISCUSSION

The junior national level Boys and Girls Mallakhamb players, expressed significantly different fear of failure on coping strategies (3.20) dimension. They had similarity on goal setting (0.669), self adequacy (0.897), uncertain future (1.578) , self control (0.618), and self evaluation (0.131) dimensions of fear of failure. When the Junior national level boys and girls Mallakhamb players were compared together on six dimensions of fear of failure, they had significant difference in their coping strategies dimension of fear of failure only. Which. showed that the junior national level Mallakhamb players of the both sexes had similarity in rest of the dimensions of fear of failure. Most of the Junior national level Girls Mallakhamb players were found to have more fear than their counter parts. which may be due to variation in level of motivation for performance improvement or learning of complex movements. It was hypothesized that there would be no significance of difference between boys and girls Mallakhamb players of different age groups. in six dimensions of fear of failure" is partially accepted, as the Junior national level boys and girls Mallakhamb players had also insignificant differences in all the dimension of fear of failure except coping strategies dimension of FOF.

5. CONCLUSIONS

1. Junior national level boys and girls Mallakhamb players differ significantly in their coping strategies dimension of fear of failure only,
2. Junior national level boys and girls Mallakhamb players did not differ significantly in their goal setting, self adequacy, uncertain future, self control, and self evaluation dimensions of fear of failure,

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