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Prioritize of Strategic Entrepreneurship Dimensions of Sports Manufacturing Industry of Iran

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ABSTRACT

The purpose of this research is to prioritize of strategic entrepreneurship dimensions of sports manufacturing industry of Iran. The methodology of this study is a descriptive survey. The first group of research population was the sports industry product experts who were selected through purposive sampling for developing of research instrument; and the second group was all manufacturers of sports enterprises' owners of Iran (N=1500), which 253 people were selected for available. For gathering of data, a revised questionnaire Ireland et al. (2003) was used. To prioritize, the factors of test Friedman at level of $p \leq 0.05$ were used. The results indicated that dimensions such as creativity and innovations, entrepreneurial culture, entrepreneurial leadership, strategic management of resources, and entrepreneurial mindset were most important aspects of strategic entrepreneurship. Based on the findings, it can be suggested that managers can exploit emphasized on creativity and innovation as one of the important dimensions of strategic entrepreneurship.

Keywords: Creativity and innovations, Entrepreneurial culture, Sports manufacturing industry

INTRODUCTION

Entrepreneurship and strategic management are considered as two dynamic processes in the performance of companies which can create value for companies and finally be effective in gaining a competitive advantage. Although entrepreneurship and strategic management are both dynamic processes, those companies that seek to create a sustainable value and wealth cannot only focus on entrepreneurship and strategic activities (Ireland et al., 2003). Therefore, strategic entrepreneurship is introduced as a concept that is effective on the level of achievement of today organizations in competitive transactions with other competitors, and it is believed that strategic entrepreneurship enables industries and companies to respond appropriately to continuous environmental changes faced by many organizations and to develop competitive advantages. In fact, strategic management makes

organizations to develop and use competitive advantage in a certain environmental space, whereas entrepreneurship promotes seeking a competitive advantage by innovation in product, market, and process (Kuratko and Audretsch, 2009). Hence, strategic entrepreneurship is considered as an interaction between entrepreneurship and strategic management and can affect the industries that are competing in economic sections (Ireland and Webb, 2009). Thus, the strategic goal of companies shall be continuous discovery and take advantage of entrepreneurial opportunities for developing a competitive advantage.

The sports industry is one of the industries that have become an active industry in the past two decades. Sports was the most effective factor in economic growth and the most lucrative industry in the 21st century. As a result, the trend toward investment in sports, or in other words, sports industry

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as one of the lucrative industries is more and more increasing. Different sports products are an important segment of the sports industry. This industry has a dynamic nature so that its operating environment, structure, and technologies used in production and properties of its products are changing with a rapid pace. Accordingly, development of a competitive advantage for such products as sports products which are dominated by well-known brand markets is very crucial for the survival of manufacturers of these kinds of products. Hence, gaining a competitive advantage and identification of factors that help its promotion has become one of the most important interests of sports managers in competitive markets today and if they cannot manage different activities better than other companies, they will not have a good economic future (Foong Yee, 2008).

However, such developing countries as Iran are faced with some risks and restrictions in enjoying the economic benefits of the sports industry. As a result, the said industry has fallen more than other industries due to environmental risks, and it is very essential for manufacturing companies of sports products to overcome such risks and uncertainties. In fact, if active companies fail to adopt proper strategic approaches to design, implement, and supervise, this industry will not achieve a sustainable competitive advantage. Therefore, using a strategy that is seeking opportunities and competitive advantage at the same time and through which the industries would be able to use existing advantages while seeking future advantages may be required as an efficient strategic approach. Hence, the present study is prioritized of strategic entrepreneurship dimensions of sports manufacturing industry of Iran.

RESEARCH METHODOLOGY

The methodology of this study is a descriptive survey. The research population is divided into two groups. The first group is composed of elites of sports manufacturing industry. From these elites, 15 were chosen purposefully for making the tools of research and explaining a conceptual model. The second group is composed of all manufacturers of the sports industry, i.e. 1500 companies. The owners and managers of these companies were chosen as research samples (253 subjects) and were sampled randomly. Two questionnaires were used for data collection. The first questionnaire measured

the demographic characteristics of sample population with 5 questions. The second questionnaire is a strategic revise entrepreneurship questionnaire Ireland et al. (2003) with 24 questions in five dimensions including entrepreneurial mindset (5 questions), entrepreneurial culture (4 questions), entrepreneurial leadership (4 questions), strategic management of resources (4 questions), and creativity and innovation (7 questions). The validity of the questionnaire was confirmed by university professors using content validity method and analyzed using factor analysis. The reliability of the questionnaire was also confirmed by Cronbach's alpha of 93%. Descriptive statistics (Excel software) was used for analyzing the demographic characteristics of research sample and to prioritize the factors of test Friedman (SPSS software) at the level of $p \leq 0.05$ were used.

RESEARCH FINDINGS

The description of demographic characteristics of research sample showed that the average age and work experience of the research sample in the field of sports manufacturing industry were 36 and 11, respectively. Of 253 participants, 248 (95%) were men and 5 (5%) were women. The percentage and frequency distribution of job positions of research sample included owners (27.3%), company managers (9.5%), marketing manager (23.7%), and sales manager (39.5%). Furthermore, the percentage and frequency distribution of sports manufacturing industry included sports shoes (18.6%), sports clothing (22.1%), sports equipment (22.9%), and all manufacturing fields (32.8%). Finally, the frequency percentage of all technologies used for economic activity included social networks (51%), email (15.8%), website (14.6%), weblog (10.3%), and none (8.3%).

The results indicated that dimensions such as creativity and innovations, entrepreneurial culture, entrepreneurial leadership, strategic management of resources, and entrepreneurial mindset were the most important aspects of strategic entrepreneurship (Table 1).

DISCUSSION AND CONCLUSION

The results showed that creativity and innovation dimension had the most important role in explaining strategic entrepreneurship to explain competitive advantage. In

Table 1: Comparing the priorities of strategic entrepreneurship dimensions

Priority	Dimension	Average rating	Chi-square	df	Significance
1	Creativity and innovations	3.18	9.896	4	0.04*
2	Entrepreneurial culture	3.10			
3	Entrepreneurial leadership	2.98			
4	Strategic management of resources	2.90			
5	Entrepreneurial mindset	2.77			

this regard, Porter stated that innovation and competitive advantage were interrelated, and companies created competitive advantage by understanding new methods in value chain to deliver values to customers (Porter, 1985). Furthermore, Weerawardena and O'Cass (2006) showed that innovation density had a positive and significant effect on competitive advantage. Ireland and Webb (2007) also believed that achieving a sustainable competitive advantage resulted from using new methods and ideas and also the development of innovation. Further, some researchers concluded that having a strong competitive advantage and development of a company's status greatly depended on using and creating creative skills and developing innovative capabilities (Castro et al., 2012).

The entrepreneurial culture dimension had the second priority in explaining the strategic entrepreneurship to explain competitive advantage. These findings are consistent with the findings of Wong (2011). Ireland et al. (2003) also showed that leaders were responsible for creation and development of entrepreneurial culture, i.e., a culture in which effective use of strategic entrepreneurship is encouraged.

The entrepreneurial leadership dimension had the third role in explaining strategic entrepreneurship to explain competitive advantage. In this regard, Ireland et al. (2003) asserted theoretically that entrepreneurial leadership creates an ability to manage resources strategically and create advantages. Some researchers also stated that entrepreneurial leadership was the ability to influence others for strategic management of resources to emphasize both the behaviors that seek opportunity and behaviors that seek advantage (Rowe, 2001). Further, Monsen and Boss (2009) stated that effective entrepreneurial leadership was the key element of strategic management in all organizational levels. Therefore, it can be concluded that it is essential for an organization to have those people who can encourage others to be more innovative, risk taking, and initiator than other competitors to develop opportunity- and advantage-seeking behaviors at the same time.

The strategic management of resources dimension had the fourth role in explaining strategic entrepreneurship to explain competitive advantage. With regard to this hypothesis, Gungor (2012) showed in his study that leverage of resources and capabilities, and in general, strategic management of resources had a positive and significant effect on innovation and advantage. Further, the finding of the present research is in line with that of other researchers who believed that innovative capabilities and value creation would not lead to success without strategic management of resources. On this basis, it can be said that human, social, and financial capitals, and all tangible and intangible resources lead to creation of value and competitive advantage in an organization only when they are collected and integrated properly.

Finally, entrepreneurial mindset had the fifth role in explaining the strategic entrepreneurship to explain competitive advantage. This hypothesis is consistent with the concerned relationship in the theoretical model presented by Ireland et al. (2003). Gupta et al. (2004) also believed that entrepreneurship mindset was one of the key elements of strategic management. Therefore, it can be said that existence of those people in an organization who can identify opportunities faster than other similar organizations is essential. This leads to the identification of such resources as knowledge, skills, and new resources, which can be used for achieving a competitive advantage after these resources are collected, integrated, and transformed into capabilities.

Based on the findings, it can be suggested that sports managers can exploit emphasized on creativity and innovation as one of the important dimensions of strategic entrepreneurship because sports with a great emphasize on creativity allows customers to change their demands. Therefore, strategic entrepreneurship is one of the ways that keeps companies in competition. Hence, it is suggested that sports production managers of Iran use strategic entrepreneurship, which uses a set of organizational actions with strong and positive capabilities and helps a company's attempts to have a better performance compared to other competitors.

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A Comparative Study on Selected Physical Fitness Components between Bangladeshi Primary School Going Boys and Girls

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ABSTRACT

The purpose of this study was to compare the selected health-related physical fitness components between Bangladeshi primary school going boys and girls aged 7-9 years old. The study was conducted on 148 boys and 156 girls for the comparison of selected health-related physical fitness variables. The selected variables for the study were flexibility (sit and reach test) lower body explosive strength (standing broad jump), upper body strength endurance (flex arm hang), and cardiovascular endurance (reduced Cooper test). T-test was used to find out the significant difference between different disciplines. It was concluded that there were significant differences between Bangladeshi boys and girls in flexibility (sit and reach test), lower body explosive strength (standing broad jump), and upper body strength endurance (flex arm hang). The significance difference was not found on cardiovascular endurance variable. Bangladeshi girls have better flexibility than boys, but boys have better lower body explosive strength, upper body strength endurance, and cardiovascular endurance than girls.

Keywords: Flexibility, Explosive strength, Strength endurance, Cardiovascular endurance, Body mass index

INTRODUCTION

The overall prevalence of overweight and obese children in southern Taiwan is higher than in other Asian countries. Furthermore, boys performed significantly better on cardiorespiratory fitness tests than girls did. In addition, body mass index (BMI) significantly influences cardiorespiratory fitness levels for both boys and girls. The children, who are physically active, have a significantly higher cardiorespiratory fitness level than those who are inactive. Given the high prevalence of childhood obesity, improving the cardiorespiratory fitness level of children could dramatically improve public health. Further studies should elucidate such complex relationships by incorporating a level of physical activity and including data on dietary intake, puberty, and socioeconomic status (Hsieh et al., 2014). Physical activity is important for improving cardiorespiratory fitness. Several

studies have demonstrated that more active children have better cardiorespiratory fitness than inactive ones (Boddy et al., 2011).

Gender influences the association between cardiorespiratory fitness and childhood obesity. Health professionals should design programs to address childhood obesity by recognizing the correlation between gender, BMI, and cardiorespiratory fitness, especially in geographical areas with a high prevalence of obesity. These would help alleviate chronic diseases and future problems caused by obesity (Eisenmann et al., 2007). Participation in physical sports activity during leisure time may positively influence cognitive performance in adolescents (Ruiz et al., 2010).

The Croatian students have a higher body-mass, have higher BMI values, and score better on tests of flexibility. Lithuanian

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students achieved better results in the repetitive strength test. Boys are taller heavier and had higher BMI values as well as achieved better results in tests of explosive power and muscle endurance, whereas girls were more flexible. Boys from Lithuania scored highest in all tests except in flexibility compared to boys in Croatia. Girls from Lithuania are thinner, have lower BMI, and achieve better results in a repetitive test of strength than girls in Croatia. Age was shown as a significant factor in the increase in all tested variables (Novak et al., 2015).

Overweight and obese children were less fit and watched more TV than their normal weight counterparts. Fat mass did not correspond to total energy expenditure activity-related energy expenditure or physical activity level. Muscle strength was not associated with Fat mass in young children but was inversely associated with fat mass in older children. Cross-sectional data are consistent with the idea that increased fitness and reduced physical inactivity may prevent children from being overweight (Grund et al., 2000).

The comparison of flexibility in the Czech population aged 18-59 years was to compare flexibility. The values of isometric strength were obtained using the sit and reach test (measuring of maximal reach in sit). In comparison with previous standards of sit and reach test were the results higher than average. A higher level of flexibility reached women, sporting people, and younger age. The most decreasing flexibility was described among young men. The reached results were affected by body characteristics (Hrazdira et al.).

Macedonian children of both sexes who belong to the underfed group achieve better results in the test endurance in pull-ups in terms of children with normal body weight. Boys in all tests for estimating the level of the physical fitness show better results except foot the deep sitting bend, in which girls show better results (Gontarev and Ruzdija, 2015). Women have greater mean flexibility than men across most of the age ranges and different levels of education although there were no significant differences between the sexes. Flexor muscle performance increases until the age of 12 which coincides with primary level education. It progressively decreases from this age onward. Older university students were the least flexible, which indicates that flexibility decreases with age, with the exception of the age ranges that included sportsmen or women who were responsible for peaks in flexibility in the results (Olga et al., 2008).

In physically inactive pupils, boys performed better in motor tests which required strength, whereas girls achieved significantly better results in flexibility tests. In the case of both sexes, flexibility of the spine was negatively correlated with body height (Podstawski and Boryslawski, 2012).

The handgrip strength was greater in the male gender while maturation differences showed a similar pattern favoring

the pubertal period. The flexibility of the pubertal girls was significantly better than their male counterparts. The duration of physical activity was significantly longer in the males than female children. The duration of light activity among girls was longer than that of boys, whereas the duration of moderate-vigorous physical activity in boys was significantly longer than that of girls. On the other hand, the duration of moderate-vigorous physical activity among the prepubertal children was significantly higher than that of children in the pubertal period (Saygin et al., 2007). In the physical performance tests requiring moving the body, power, and strength, the boys generally performed higher than the girls. Girls were superior to boys in the tests of flexibility (Amusa et al., 2011).

Chinese boys performed better than girls, and the older children performed better than their younger counterparts for all physical fitness tests. Physical fitness parameters including standing broad jump, 50 m sprint, and 50 m*8 shuttle run were tested. No significant difference in all three physical fitness tests was found between children with underweight and with normal weight, and they both performed better than their counterparts with overweight and obese in all three physical fitness tests. An inverse association of obesity with cardiorespiratory fitness, muscle explosive strength, and speed was identified among Chinese children (Shang et al., 2010).

Purpose of the Study

The purpose of this study was to compare the selected health-related physical fitness components between Bangladeshi primary school going boys and girls aged 7-9 years old.

METHODOLOGY

Selection of Subjects

About 148 primary school going boys and 156 primary school going girls from Bagerhat district in Bangladesh were selected aged 7-9 years old. All subjects were arranged in a randomly. Total subjects were 304 and all of the subjects live at a village. All of 304 primary school going students were born in daily labor or peasant family.

Selection of the Variables and Criterion Measures

Following variables were selected for the purpose of the study:

- i. Reduced Cooper test for cardiovascular endurance (in meters)
- ii. Standing broad jump for lower body explosive strength (in centimeters)
- iii. Flex arm hang for upper body strength endurance (in seconds)
- iv. Sit and reach test for flexibility (in centimeters)
- v. BMI.

Statistical Techniques

Mean, standard deviation (SD), and t-test were used to find the statistically significant difference between the two groups. The level of significance was set at 0.05. The data were calculated using SPSS statistical software.

RESULT AND FINDINGS OF THE STUDY

A perusal of Tables 1-3 indicates a statistical result of this study. Mean, SD, standard error mean, and t-test were used as statistical analyses, which were presented in these Tables 1-3. The mean of age, weight, and height of Bangladeshi boys were 7.96 years, 23.23 kg, and 126.71 cm, respectively, but the mean of age, weight, and height of girls were 7.96 years, 21.99 kg, and 125.85 cm, respectively. BMI of Bangladeshi boys and girls are 14.38 kg/m² and 13.83 kg/m², respectively. The mean and SD of age, height, weight, and BMI of Bangladeshi children have been given in Table 1. The mean values of flexibility, explosive strength, strength endurance, and cardiovascular endurance of boys are 23.25 cm, 146.28 cm, 26.03 s, and 1087.07 m, respectively. On the other hand, the mean values of flexibility, explosive strength, strength endurance, and cardiovascular endurance of girls are 24.47 cm, 133.46 cm, 17.05 s, and 1029.23 m, respectively, presented in Table 2.

DISCUSSION

The statistical findings of the present study revealed that Bangladeshi girls have lesser weight than boys. BMI of girls has lesser than boys. The comparison of mean difference of BMI between boys and girls has given in Figure 1. The result of the present study revealed that significance differences were found on flexibility, lower body explosive strength, and upper body strength endurance, but the significance difference was not found on cardiovascular endurance presented in t-test of Table 3. The comparison of mean difference of explosive strength endurance has shown in Figure 2. Boys were significantly longer than girls in both the distance of standing broad jump (146.28 cm vs. 133.46 cm) and the time of upper body strength endurance (26.03 s vs. 17.05 s). Boys have better lower body explosive strength and upper body strength endurance than girls (Shang et al., 2010; Amusa et al., 2011). Graphically, comparison of mean differences flexibility and upper body strength endurance between boys and girls is presented in Figure 3. The flexibility of boys and girls is 23.25 cm versus 24.75 cm. Girls have better flexibility than boys (Olga et al., 2008; Podstawski and Boryslawski, 2012; Hrazdira et al., 2013; Amusa et al., 2011). Boys are taller, heavier, and had higher BMI values as well as achieved better results in tests of explosive strength and muscle endurance than girls (Novak et al., 2015). 148 Bangladeshi primary school going boys were more involved in games than girls, and also they help their parents in the field for cultivation. Hence, the boys are more physically active than girls (Hsieh et al.,

Table 1: Group statistics

	N	Mean±SD	Standard error mean
Age			
Boys	148	7.96±0.669	0.055
Girls	156	7.96±0.735	0.059
Weight			
Boys	148	23.23±4.623	0.380
Girls	156	21.99±4.762	0.381
Height			
Boys	148	126.71±8.075	0.664
Girls	156	125.85±9.622	0.770

SD: Standard deviation

Table 2: Group statistics

	N	Mean±SD	Standard error mean
Reduced Cooper test			
Boys	148	1087.07±120.305	9.889
Girls	156	1029.23±83.644	6.697
Standing broad jump			
Boys	148	146.28±19.820	1.629
Girls	156	133.46±19.326	1.547
Flex arm hang			
Boys	148	26.03±15.641	1.286
Girls	156	17.05±13.934	1.116
Sit and reach test			
Boys	148	23.25±4.079	0.335
Girls	156	24.47±4.605	0.369
BMI			
Boys	148	14.38±1.944	0.160
Girls	156	13.83±1.749	0.140

BMI: Body mass index, SD: Standard deviation

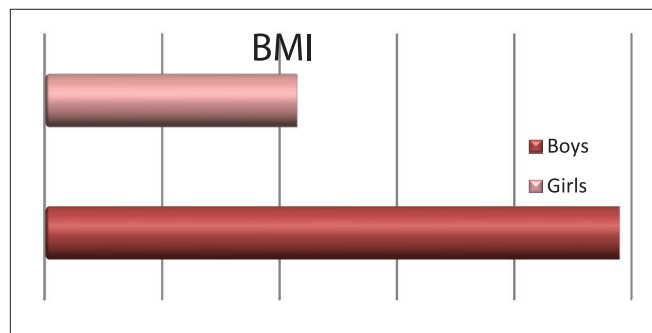


Figure 1: Graphically comparison of mean differences of body mass index between boys and girls

Table 3: Analysis of t-test

	Levene's t-test for equality of variances		t-test for equality of means						
	F	Significant	t	df	Significant (two-tailed)	Mean difference	Standard error difference	95% confidence interval of the difference	
								Lower	Upper
Reduced Cooper test									
Equal variance assumed	23.597	0.000	4.887	302	0.000	57.837	11.834	34.549	81.124
Equal variances not assumed			4.843	260.738	0.000	57.837	11.943	34.319	81.354
Standing broad jump									
Equal variances assumed	0.049	0.825	5.710	302	0.000	12.822	2.245	8.403	17.240
Equal variances not assumed			5.707	300.171	0.000	12.822	2.247	8.400	17.244
Flex arm hang									
Equal variances assumed	2.926	0.088	5.293	302	0.000	8.983	1.697	5.643	12.322
Equal variances not assumed			5.277	293.757	0.000	8.983	1.702	5.632	12.333
Sit and reach test									
Equal variances assumed	2.317	0.129	-2.443	302	0.015	-1.221	0.500	-2.205	-0.237
Equal variances not assumed			-2.451	300.600	0.015	-1.221	0.498	-2.202	-0.241
BMI									
Equal variances assumed	1.026	0.312	2.605	302	0.010	0.552	0.212	0.135	0.969
Equal variances not assumed			2.598	294.689	0.010	0.552	0.212	0.134	0.970

BMI: Body mass index

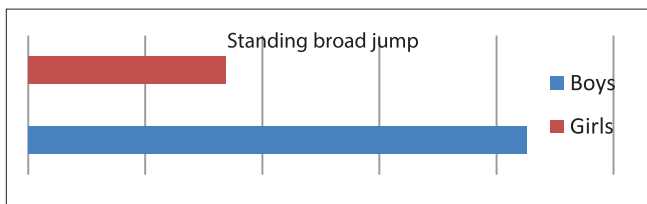


Figure 2: Graphically comparisons of mean differences lower body strength endurance between boys and girls

2014; Boddy et al., 2011). Participation in physical sports activity may positively influence cognitive performance in adolescents (Ruiz et al., 2010). The comparison of mean difference of cardiovascular endurance between boys and girls is presented in Figure 4. The distance of reduced Cooper test of boys and girls is 1087.07 m versus

1029.23 m. The cardiovascular endurance in boys is also better than girls (Hsieh et al., 2014).

CONCLUSION

On the basis of the result, it can be concluded that Bangladeshi boys have better lower body explosive strength, upper body strength endurance, and cardiovascular endurance than Bangladeshi girls. Bangladeshi girls have lower BMI than boys, but girls have better flexibility than boys.

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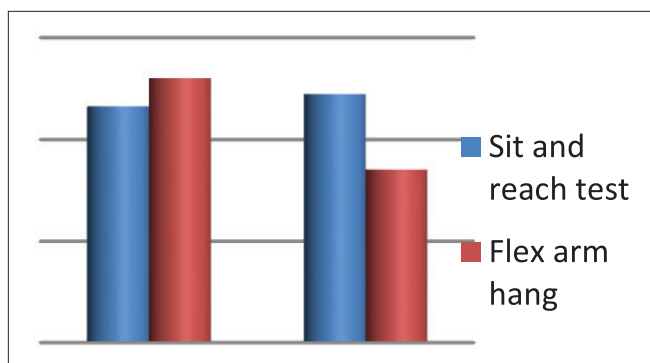


Figure 3: Graphically comparison of mean differences flexibility and upper body strength endurance between boys and girls

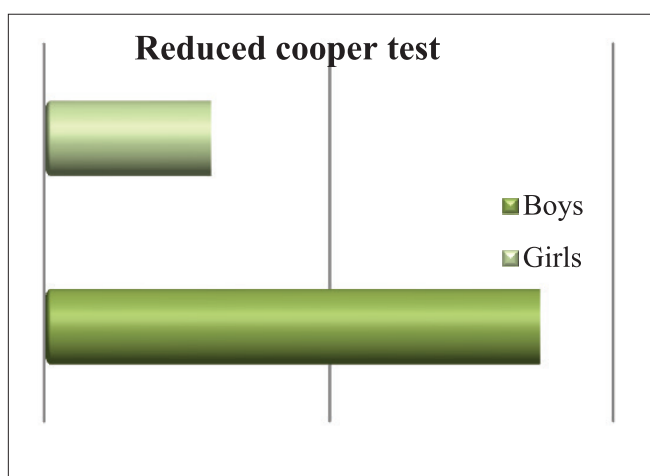


Figure 4: Graphically comparison of mean differences cardiovascular endurance between boys and girls

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Effectiveness of Skills-based Approach in the Learning of Volleyball Skills among College Students

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ABSTRACT

One key to successful teaching of physical education is using of a variety of approaches and methodologies. Skills-based approach (S-BA) helps learners enjoy learning thru prior acquired skills in sports and other physical activities. This study analyzed the effectiveness of S-BA in learning of volleyball skills among college students. The quasi-experimental method was employed in the analysis of the effectiveness of the two instructional approaches. T-test of the dependent and independent variable was used to assess the improvement of the two groups of students' performance on the different volleyball skills, serving, passing, and setting. Findings of the study reflect that the experimental group (S-BA) had fair to good performance in serving, passing and setting skills, respectively. Furthermore, the experimental group recorded a significant increase in mean gain score along the three skills. Based on the result of the study, the S-BA is effective in improving the identified volleyball skills among college students.

Keywords: Approaches, Learning, Performance, Volleyball skills

INTRODUCTION

One of the keys to the successful teaching of physical education is employing of a broad range of approaches and methodologies. As it is acknowledged, schools, classes and teachers will vary, some methods will suit particular circumstances better than others, and the nature of the strands themselves necessitates the use of a variety of teaching methods. There is a need to examine the teaching methods which will best enhance the achievement of the objectives, taking factors such as the content and context of the lesson into account as well as the needs of the learner. Learning and teaching are inseparable as the sides of the coin; each is needed to complete the whole. There can be no learning without teaching. All the skillful teaching produces abundant learning (Vanner, 1969).

Different teaching approaches are not necessarily exclusive. An effective teacher is likely to switch and mix new

approaches to suit the objectives of the unit of work or lesson. As objectives vary within a lesson, the effective teacher will move among different teaching approaches or methods.

Choosing the right approach for the right situation can prove challenging particularly when the teacher brings to the task a set of beliefs. While there is no ideal method to use, a thoughtful teacher will explore (and challenge) his or her personal beliefs while considering the learner, task, and contextual characteristics before making a decision (Cassidy et al., 2004).

Objectives

Examine the teaching methods which will best enhance the achievement of the objectives, taking factors such as the content and context of the lesson as well as the needs of the learner.

By injecting pedagogical approach to teaching, students can have a better chance and can engage to physical education

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and sports. Moreover, it can be a viable tool for addressing the maximum participation of the child and can be a catalyst to ensure effective learning.

METHODOLOGY

The researcher used the experimental method of investigation. Experiments are usually carried out to discover the cause of a phenomenon (Ariola, 2006). In this study, the quasi-experimental design was employed. Quasi-experimental does not control just like the true experimental designs, but they do a much better job than the pre-experimental designs (Sevilla et al., 2006). The subjects of the study were the students taking-up Bachelor of Science in Hotel and Restaurant Management in the College of Arts and Management of the Don Mariano Marcos Memorial State University, Mid-La Union Campus, City of San Fernando, La Union. Respondents are the third year students enrolled in PE 104 - Team Sports. Two sections were chosen, BSHRM 3-B as the control group and the BSHRM 3-A assigned as the experimental group.

RESULTS AND DISCUSSION

It is reflected from the result on the pre-test performance of the students that both the control and experimental group have fair performance in serving skill and poor performance on passing skill. In setting skill, the control group has fair performance (6.9143) while the experimental group has good performance (10.1429). As pointed out from the result of the students' performance, the students have a background on the basic skills but have difficulty in the correct execution due to the nature of the task and the background of the learners. According to Martens (2004), to promote learning of the motor skills, the nature of the task and the background of the learner should be considered in deciding whether to teach the skill by the whole or the part method.

The post-test performance of the students revealed that both the control (9.68) and experimental (15.23) groups have fair performance on serving skill. On passing skill, the control group obtained poor performance (3.3529) while the experimental group has fair performance (6.9429). On the other hand, the setting skill of the control group obtained 9.800, equivalent to good and a very good performance for the experimental group with a mean of 12.26. From the result, there was an evidence of improved performance of the students on the different skills in volleyball. The findings of the study led to the concept of Wuest and Bucher (2006), saying that to facilitate learning, practices should be appropriate to the type of skill to be learned.

The experimental group has significantly higher gain in mean scores with 7.579 t-tests. There is a significant improvement of students' performance in serving skill; this could perhaps

be attributed to the treatment that was given to both groups. This implies that the drill given to the experimental group was more effective in improving the performance of students on serving skill than the control group. The result of the study can be collated to Schmidt's (1974) basic observation that sports such as tennis and badminton including volleyball is that we never repeat the same action exactly. Even if we just consider one "movement class," the ball is always unique in its height, oncoming trajectory, spin, and so on. The experimental group had significantly higher gain in mean scores under passing skill. It is concluded that the experimental group is effective and has a significant development of students' performance on passing skills. Since the students are novices or beginners, errors may be frequent and performance is far from flawless. According to Fitts and Fosner (1976), a high level of concentration on the task is required as a learner tries to put together the various parts of the skill in the correct sequence. It is obviously reflected that the experimental and control groups have statistical gain in mean scores on setting skill. It is also inferred that both groups marked increase in the post-test mean. This simply implies that the students had significantly improved or developed their volleyball setting skills as the activity progresses. The implication was based from Gentile's working model (1972) on the three stages of skill development: Beginner, intermediate, and advanced. As the activity continues, the students reached the intermediate stage which is dominant by planning and implementing effective practice strategies. He emphasized that "perfect practice will make perfect."

The skills-based approach (S-BA) of the experimental group is effective in developing serving skills of the students with 4.909 t-tests ($P < 0.000$). This implies that the given drill had continuously improved the serving skills of the students. The skills of the students transpired when it is necessary for them to perform the task and perform the given activity properly and correctly. As cited by Andin (2004), the result of the study is relevant to the Cognitive Theory (Field Theory) who was developed by Gestalt stating that an individual learns a task as a meaningful whole rather than a series of related parts.

Another result of the data shows that there is no significant difference in mean gain on both the experimental and control groups in the development of passing skills ($P < 0.104$). This implies that the S-BA (experimental group) and traditional approach (TA) (control group) are both effective in developing the passing skills of the students. The given drill or treatment for both experimental and control groups consistently improved the passing skills of the respondents. Repetitive execution of the passing skill contributed toward mastery of the skill before the treatment was given to both groups of respondents.

Further study revealed that there is no significant difference in the mean gain scores in setting skill ($P < 0.432$). This

implies that both approaches more effective in improving the setting skills of the students. Through continued execution of tests and drills, the students were able to make adjustments, variations and automatic motor movement on both approaches. This is in conformity to the stimulus-response theory developed by Thorndike, that suggests that learning takes place by conditioning a response to a stimulus. The theory emphasizes that when an individual is stimulated to perform an act of response, and this response is accompanied by pleasure and satisfaction, he will remember and repeat the act (Andin, 2004).

CONCLUSIONS

Based on the findings of the study, the following conclusions are drawn:

- The students have poor to good pre-test performance on both S-BA and TA in learning volleyball skills. The previously learned skills in volleyball can be a factor why students have a difficulty in executing the skills which only needs reinforcement and follow-up.
- The students have poor to good post-test performance on TA in serving, passing, and setting skills while students on S-BA have fair to very good performance on the skills mentioned. The experiential background of the students is an aspect to their readiness to learn the skills. Students' prior knowledge is essential for the comprehension of new information so that they can learn easily.
- The control group (TA) has a significant gain in mean scores on the pre-test and post-test in serving and passing skills but no significant gain in mean scores in setting. The experimental group (SBA) has a significant gain in mean scores in pre-test and post-test in serving, passing, and setting skills. The performance of the students had consistently improved or developed as the activity progresses. As the saying goes, "perfect practice makes perfect." Each trial in learning new skills, each repetition of a motion leaves temporary trace in the person's brain which leads to an automatic execution of the skills.
- The experimental group has a significant difference in mean gain scores in serving skills but no significant

difference in passing and setting. The S-BA is the more effective in developing serving skills of the students. Since serving skill is the first and foremost skill learned which puts the game in play, it is where the teacher and students concentrated on proper execution and precise target. On the other hand, both TA and S-BA is effective in developing the performance of the students in passing and setting skills. The repetitive execution of the passing and setting skills led to the adjustments and mastery of proper arm position, footwork and ball control.

- Therefore, S-BA is effective in improving the identified skills in volleyball among college students.

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Effect of Different Teaching Methods on the Performance of Discus Throw

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INTRODUCTION

With the advancement of scientific knowledge and research findings, the training of sportsman and sportswomen for any game is carried out on the basis of certain principles. Due to new findings and research, these principles are changed or modified. The main consideration is given to the results produced by the other nations, coaches, and trainers before adopting their principles and methods of training in different games and sports. It is a fact or tendency of human mind that men will go on searching new things as long as they can, and there is no limit to the great thrust of human spirit.

Only if the correct training methods are known to the coaches, the particular part or area can be exposed and there will be no wastage of time in doing unnecessary exercises and adopting faulty methods. Thus, better results can be obtained in a short period.

Nowadays, athletic is one of the most popular sports. Athletes want to improve their techniques to give their best performance. For this purpose, the chief emphasis of the coach should be on the training methods, he/she can see his/her trainees performing to their best and optimum levels.

At present, athletes are trained by highly scientific means for excellent performance. They are exposed to training methods which have proved beneficial for achieving higher standards. Much progress has been made in the acquisition of knowledge about training methods and technique of events of athletics.

Instructional methods are based on the principles that learning is highly individualized and that pupil does his own learning. Attempts are made to provide by different means for individual difference within the pattern of the group structure of the modern class room.

Demonstration of new skills plays an important part in the teaching of physical education activities. Motor skills involve complex coordination and seldom if even pupil can receive a clear view or motor skills by verbal explanation alone. Demonstration of motor skills can be accomplished through several media. Demonstration of motor skills is performed by the teacher, a selected pupil, or some other expert performer.

Audio-visual aids or material provide realistic imaginary and substitute experience to enrich curricular experience for pupils. Their value lies in assisting the learner to grasp a concept of the precise nature of desired outcomes, in creating interest, in enlarging the scope of experiences that can be brought to the classroom, in helping to show inter-relationship among complex wholes, in introducing the element of variety, and in promoting the relation of desired learning.

The means the teacher uses to organize and guide learning experiences are called teaching methods (Knapp and Haggam, 1983).

METHODOLOGY

The methodology adopted in the present study related with the selection of participants, experimental design, criterion

measures, administration of teaching methods, collection of data, and statistical analysis of data is presented.

Selection of Participants

The purpose of the study was to find out the “effect of different teaching methods on the performance of discus throw.” To achieve this, 80 females in the age group ranging from 18 to 23 years studying in Smt. Bangaramma Sajjan Arts and Commerce College for women, Vijayapura, Karnataka, were selected as participants.

Experimental Design

Random group experimental design was adopted for the study. All the participants were divided into four groups, each consist of 20 females. Further, three groups were randomly assigned with three teaching methods, namely, instructional method, demonstration method, and audio-visual method. The selected technique was taught to different groups in their respective methods of teaching for 55 min a day, three classes a week for 6 weeks.

Criterion Measures

The criterion measures chosen to test the hypothesis were performance of discus throw of the participants before and after the training period by the expert. Females were trained by different teaching methods, namely, instructional method, demonstration method, and audio-visual method.

Administration of Teaching Methods

After a careful review of related, the following teaching methods were adopted and their effects were observed after 6 weeks of training program. All the participants were assembled on the track of Smt. Bangaramma Sajjan Arts and Commerce College for Women, Vijayapura, their investigator explained the purpose of the study with which they could form a mental picture of the throwing technique, they were going to do.

Instructional method

The technique of discus throw was instructed to the participants of Group A for fitness minutes. Instructions for performing the technique were also given to the participants in written form. After that, the participants were told to practice the technique for 45 min, correction, if necessary, was done with the help of instruction alone. A total of three instructional classes were conducted in a week.

Audio-visual method

The technique of discus throw was taught to the students using the available audio-visual aids, that is, photos, magazines, posters, models, and athletic books. These aids were used only for 15 min after which the students were told to practice for 40 min continuously. Scholars used audio-visual aids for performance of the skills and to

correct their mistakes, if any. Three classes a week were conducted.

Demonstration method

The technique of discus throw was demonstrated to the participants of Group C for 15 min along with a brief explanation. After the demonstration, students were asked to perform and practice the same skill for 40 min continuously. Mistakes, if any, were corrected only by demonstrating the skill. The students met 3 times a week for 6 weeks.

Collection of Data

Data collected for the statistical analysis were the performance of discus throw by the participants of the different groups before and after the teaching program.

Statistical Analysis

The significant effect of teaching/learning of discus throw technique by using three teaching methods, analysis of covariance was applied. The level of significance was set at 0.05.

Analysis and Interpretation of Data

The findings of the study are presented in this chapter pertaining to the comparative effects of three different teaching methods on the performance of discus throw.

FINDINGS

The improvement in the performance of discus throw was measured for the participants. Groups (A, B, and C) were trained by instructional method, i.e., audio-visual method and demonstration method, respectively.

Analysis of co-variance, the results for data of improvement in performance of discus throw by three different teaching methods are shown in Table 1.

Since the calculated value of $f = 10$ is greater than the tabulated value of $f_{05} = 2.74$, it is concluded that all the methods are not equally effective in improving the performance of discus throw.

Table 2 shows that there was a significant difference between demonstration method and control group, whereas there were no significant difference among instruction method and audio-visual method, instructional method and demonstration method, instructional method and control group, audio-visual method and demonstration method, and audio-visual method and control group.

DISCUSSION OF FINDINGS

Findings of this study indicated that the demonstration method is superior to the instruction method and audio-visual

Table 1: Analysis of co-variance

Source of variance	df	SSx	SSy	SSxy	SSyx	MSSyx	F
Treatment group means	3	7.148	96.289	14.19	80.743	26.91	10.00*
Error	75	674.90	486.70	438.26	202.107	2.69	

*Significant, $f_{05}(3,75)=2.74$

Table 2: Adjusted mean scores under training method during post-testing in different groups

Instructional	Audio visual	Demonstration	Control	MD	CD
18.76	18.26			0.50	
18.76		20.17		1.41	
18.76			17.41	1.62	2.74
	18.26	20.17		1.91	
	18.26		17.41	0.85	
		20.17	17.41	2.76*	

Significant, $CD_{05}(3,75)=2.74$

method in the performance of discus throw. Findings of this study revealed that there were clear directions and ideas so that the participants could grasp the lesson, and hence, the demonstration method becomes effective. As the instructional method is not being effective than that of demonstration, it can be said that lack of formulation of mental picture by participants and ineffective way of instruction are the causes for its insignificant effectiveness. About audio-visual method, not being effective that much of demonstration, it can be due to lack of understanding without proper instructions about the charts, diagrams, still pictures (posters, photos), and study resources. There is an idea that if attention was emphasized on the important elements as found to be important in demonstration method, then instructional method and audio-visual method could have also become as effective methods of teaching.

From the results of this study, it can be pointed out that no teaching method should be used separately. To obtain better improvement in learning and performance, a combination of all the teaching methods should be used.

SUMMARY

Demonstration method is considered to be an important and effective method of teaching in physical education and sports. However, marked differences are noticeable in the findings of empirical studies done in this area. This study was undertaken to compare the effects of three teaching methods, namely, instructional method, demonstration method, and audio-visual method in the performance of discus throw.

After a training program of 6 weeks using all the three teaching methods, a post-performance test was again administered

for all the four groups in the performance of discus throw. Analysis of covariance was obtained for making a significant improvement in the performance of discus throw to find out the differential effects.

The analysis of data reveals that only demonstration method of teaching proved to be effective in improving the performance of discus throw, after an experimental period of 6 weeks. The instructional method and audio-visual method did not show any significant improvement in the performance of discus throw, since the calculated F value is 2.74, which is only significant in the case of demonstration method. Demonstration method is considered to be an important and effective method of teaching in physical education and sports.

CONCLUSIONS

Under the conditions and within the limitation of the present study, the following conclusions are drawn.

The performance of discus throw may be significantly improved by administering a training program using demonstration method.

Demonstration method of teaching is superior to improve the performance of discus throw in comparison to the instructional method and audio-visual method.

Instructional method and audio-visual method both are equally significant, but according to critical findings, instructional method is superior to the audio-visual method.

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The Effect of Circuit Training on Some Selected Physical Fitness Components: With Specific Reference to Dessie Town Basketball Project Players, Ethiopia

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ABSTRACT

This study was carried out to examine the responses exhibited by Dessie town administration basketball project players under the age of 15 concerning the effects of circuit training on selected physical fitness components of cardiovascular endurance, flexibility of the hip and hamstring muscle, agility, speed and power of the lower extremities following an 8-week circuit training program. All members of the project were taken as a sample, which consists of 16 participants. The subjects were purposively selected from the town administration. The subjects underwent training 3 times a week, for 8 consecutive weeks 50/60 min duration, with moderate and high intensity, respectively. A single group quasi-experimental design, otherwise known as repeated measure design was used for the study. Data collected were analyzed using descriptive statistics of mean, range, and standard deviation for interpretations of research questions, whereas inferential statistics of paired t-test was adopted to confirm the significance of the stated hypotheses at the 0.05 level of significance. The results show that there was a significant difference in the pre- and post-test responses of cardiovascular endurance, flexibility, and power. The differences recorded for the performance characteristics of speed and agility was not significant. It was recommended that basketball project coaches and players should adopt regimental field training program and engage in strenuous circuit physical training to see the effects of the training program on the physical fitness components.

Keywords: Cardiovascular endurance, Flexibility, Agility, Speed and power

STATEMENT OF THE PROBLEM

The questions, “How much exercise is enough?” and “What type of exercise and method is best for developing and maintaining fitness?” are frequently asked. It is recognized that the term “physical fitness” is composed of a variety of characteristics included in the broad categories of health-related such as cardiovascular endurance, muscular strength, muscular endurance, flexibility, and body composition and skill-related including balance, coordination, agility, power, speed, and reaction time. The

research that shows the effects of training method on the physical fitness level of project players was not done before in Dessie town administration. Even there is no research on other sports projects other than basketball.

The researchers get the chance to observe closely the training method that implemented in different sports activities. Most of the time training methods were not selected based on the changes that brought on the components of physical fitness even the status of the physical fitness components level were not tested and measured. In general, the changes that

come from the training were not well identified. Through the idea mentioned above, the researchers selected the training method and need to study its effect.

According to Schlish (1990), circuit training method is one of the ways of physical fitness training aiming to general development which includes all the physical aspects, as well as the heart and blood vessels fitness, the investigators were interested to evaluate whether there would be any effect on cardiovascular endurance, flexibility, agility, speed, and power of the physical fitness components of Dessie town basketball project players of boys aged 13-15 years after a training period of 8-week by applying circuit training method.

Hypotheses

The researchers formulated the following hypotheses:

- H1: There will be no significant difference on the development of power of the lower extremities in the pre- and post-test following 8-week circuit training program.
- H2: There will be no significant difference on the development of speed following 8-week circuit training program.
- H3: There will be no significant difference on the development of agility following 8-week circuit training program.
- H4: There will be no significant difference on the development of cardiovascular endurance following 8-week circuit training program.
- H5: There will be no significant difference on the development of flexibility in the lower back and hamstring muscle following 8-week circuit training program.

General Objective

The general objective of this study is to evaluate the effects of circuit training on some selected physical fitness components of Dessie town administration basketball project players.

Limitation of the Study

The extraneous variables of environment, day to day activities of the subjects' diet, and rest were not under the control of the researchers.

RESEARCH DESIGN AND METHODOLOGY

The researchers were implemented the single group quasi-experimental design because it was appropriate for nature and the objectives of the study. After going through the related literature, the following dependent and independent variables were chosen to collect the data at pre- and post-test and to render training.

To measure cardiovascular endurance, power, agility, flexibility, and speed, the researchers used Harvard step

test, vertical jump, Illinois agility test, sit and reach test, and 50 m sprint run were used, respectively. The researchers also applied the appropriate statistical analyses (i.e., means, standard deviations, and t-value) to make sure that the sample is characterized by parity in all the variables. For the purpose of this study, the researchers used all 16 basketball project players. The age of the subjects ranged between 12 and 15 years.

Data Collection Instrument

The researchers determined the tests that measure the physical fitness components based on those utilized by the NSCA, FITNESSGRAM, and the British Association of Sport and Exercise Science Testing Guidelines (Edward M. Winter et al., 2007). These tests were sit and reach test for flexibility, vertical jump test for power of the lower extremities, Illinois agility sprint test for agility, 50 m sprint for speed, and Harvard step test for cardiovascular endurance. The training units were designed for 8 weeks, which included 5 stations to train the trainees on. The following basic materials were used throughout the study meters, cons, stopwatch, ropes box, and data collection tools with the support of Dessie town administration sports commission.

Validity and Reliability

A pre- and post-test were carried out with standardized physical fitness test of the same and appropriate identified methods in the design of the study. In addition, the selected tests were approved by the National Strength and Conditioning Association/NSCA/FITNESSGRAM and the British Association of Sport and Exercise Science Testing Guidelines (Edward M. Winter et al., 2007). It is insured the researcher comprehensive enough and measures what it is intended to measure. Internal consistency technique is implemented to measure reliability level of the instrument. The test at all levels is measured repeatedly three times which showed no significant difference. The only variable the test would measure is the one it is designed to. To minimize mistakes occurred during data collection, all data collectors were oriented about the measurement procedures.

Statistical Analysis Plan

Data analyzed using version 16 of the Statistical Package for Social Sciences (SPSS). Descriptive statistics (i.e., means and standard deviations) and t-test were computed to achieve the objectives of the study. The level of significance or the value of P was set at 0.05.

Ethical Consideration

The primary ethical conduct was taken into consideration. Permission was obtained from the university ethical conduct management committee and also discussed with the administration of Dessie town sports commission before

proceeding with the study. The participants were signed informed consent to participate in the study. The data are kept confidentially.

DISCUSSION AND RESULT

Table 1 shows mean and standard deviation values of agility and speed performance test.

The data (Table 1) showed that there was a significant difference between before the exercise and after 8 weeks of exercise on individuals' Illinois agility run and 50 m speed performance. The mean values of Illinois agility run test were 16.1725 s in before exercise, which was improved 14.9644 s at the end of 8-week exercise training program test, this means Illinois agility run performance improved by -1.2081 s after 8-week exercise training program. The main reason for these performance efficiency improvements was the involvements and efforts of selected subjects on the proposed exercise training schedule.

As indicated in Table 1, 50 m speed run shows that there was a significant improvement of speed performance. The mean value of 50 m speed run test before exercise training program was 9.7312 s and after training mean score value was 8.68 s. When we compare the mean value of pre-test result with the post-test result, it has -1.0512 s difference. The mean value was decreased from 9.7312 to 8.68 s by -1.0512 s mean difference. Although the negative mean difference value shows that the time to cover a given distance. On the other hand, it indicates that the quality of participants on increments of speed capacity and the improvement of the participants in the reduction of time duration. This also shows that increments of 50 m speed performance were observed on the selected research members. The reason behind this change was exercise training program that they were engaged in. The result of this study agreed with the finding of Hakkinen and Keskinen (1989) and it suggests that sprint training could lead to improvements in human muscle power capabilities, as well as to improvements in dynamic athletic performance.

Table 2 shows mean and standard deviation values of flexibility, cardiovascular endurance, and power performance test.

The Table 2 showed that there was a significant improvement in between the pre- to post-test score. The increments on the performance were due to they were involved in the exercise training program. The mean score value for sit and reach test before exercise training program was -0.625 cm and after training mean score value was 3.5625 cm. When we compared the mean score value of before training test with after 8-week exercise training test, the result was 2.9375 cm mean difference. This shows the increments of mean value

Table 1: Pre- and post-training test: Mean and standard deviation values of Illinois (distance/s) and 50 m speed (distance/s) for Dessie town basketball project players

Parameters	PTM	POTM	PSD	POTSD
Illinois agility run test	16.1725	14.9644	0.67215	0.55977
50 m sprint run	9.7312	8.68	1.02952	0.71389

Values mean \pm SE, PT: Pre-training test which was taken before exercise for comparing the result with post-test results of the performance, POT: Post-test which taken at the end of 8th week of exercise training program. PTM: Pre-test mean, POTM: Post-test mean, PSD: Pre-standard deviation, POTSD: Post-standard deviation, SE: Standard error

Table 2: Pre- and post-training test: Mean and standard deviation values of sit and reach (distance/cm), Harvard step (RHR/min), and standing vertical jump (distance/cm) performance test of Dessie town basketball project players

Parameters	PT	POT	PSD	POTSD
Sit and reach test	-0.625	3.5625	7.20850	6.95933
Harvard step test	89.1875	95.50	10.13390	10.95445
Vertical jump test	26.375	31.5625	4.51479	4.57120

Values are mean \pm SE, PT: Pre-training test which was taken before selected training exercise program for differences of performance of basketball players, POT: Post-test which was taken after consecutive 8th week of training program. PTM: Pre-test mean, POTM: Post-test mean, PSD: Pre-standard deviation, POTSD: Post-test standard deviation, SE: Standard error

from -0.625 to 3.5625 cm, with 2.9375 cm. Although the positive mean difference value shows that the efforts of participants during a training session and the impacts of exercise to being flexible. The result of this study was incorporate with the finding of Gbaltaci et al. (2003). They conducted their study on the effect of exercise program on comparison of back saver sit and reach test and modified back saver sit and reach test as a measurement of hamstring flexibility.

As indicated in Table 2, mean value of pre-training test and Harvard step test result was 89.1875 and post-training test was 95.5. When we compare the performance of individuals before training test result with that of post-training test result, mean difference of 6.3125 was recorded. At the end of the study, the mean value of participants on Harvard step test was significantly increased. This indicates that the major benefits of exercise training program on increasing the participant's performance in Harvard step test.

As indicated in Table 2, mean value of pre-training test result and standing vertical jump test was 26.375 cm and post-training test was 31.5625 cm. When we compare the performance of individuals before training test result with that of post-training test result, mean difference of 5.1875 cm was recorded. At the end of the study, the mean value of participants on standing vertical jump was significantly increased. This indicates that the major benefits of exercise training program on increasing the participant's performance in vertical jump. Therefore, this result was consistent with the finding of Markovic and Mikulic (2010).

Table 3 shows the mean difference and significance level of each physical fitness parameters.

Table 3 shows the overall results of each test. It includes the mean difference from one test to another and the significance of post-tests in reference to the pre-tests. Improvement of performance was recorded in all physical fitness variables. Even though the result of improvements was different in all fitness programs, all participants revealed remarkable changes. This was due to that all study members were involved on the training program. The mean difference value of sit and reach test as well as 50 m speed test was 3.82 and 2.54, respectively, from post- to pre-test have no much more differences as compare to post (2.44). In addition, Illinois test, standing broad, and vertical jump tests performance were increased, and more significant improvements were recorded at the end of the 8th week on the performance of Dessie town administration basketball project players.

In general, according to this findings and based on standard norms, the selected type 8-week training exercises program brought significant changes on selected physical fitness components. Especially, the post-test mean value results of the participants in sit and reach test (15.77) should be excellent. Moreover, the rest post-test mean value results fitness variables should be above average. Therefore, these findings put a remarkable idea for the differences of performance within basketball project players. The proposed dependent variable drills were significantly improved, cardiovascular endurance, explosive power of the lower extremities, flexibility of the hip and hamstring, as well as

speed, and the overall agility of individuals. Similarly in a study conducted by Oliver and Brezz (2009), they examined the effect of functional training on the functional training exercises demonstrated improvements in speed, endurance, explosive power, flexibility, and agility (Weiss et al., 2010).

SUMMARY

The data collected from the study were analyzed using SPSS version 16 software. The paired t-test was used for this study. At the beginning of training program, all subjects were taken part on the conditional exercise for 2 weeks. Initially, pre-test, then at the end of the 8-week training program post-physical fitness test was given to each subject. Finally, the data were analyzed with paired t-test. The analysis was used to give a tangible figure for the sake of justifying the output of training and to find out the significant difference of each participant. In all test cases, the level of significance was 0.05, which was considered as an appropriate. In general, this study proved the impacts of circuit training on some selected physical fitness components of Dessie town administration under 15 basketball project players. Due to the designed circuit training program, highly significant performance improvements were observed in all independent variables except in agility and speed.

CONCLUSIONS

Based on the major findings of the study, the following points are mentioned as conclusion.

- According to the results of this study, which was registered by the participants, all study subjects brought a significant performance improvement in; Harvard step test, Illinois agility run, 50 m speed, sit and reach as well as vertical jump tests
- Among the selected types of independent variables, the subjects improved more in vertical jump and sit and reach tests
- Since the smallest number is being an indicator of the best time duration, all participants showed above average improvements on 50 m speed and Illinois agility run test
- Based on the finding of this study, the exercise training

Table 3: The mean difference value and significance level of each test result of participants

Independent variable	Parameter I	Parameter II	MD (I, II)	Significant
Sit and reach test	-0.0625	3.7188	-37188	0.000
50 m sprint run	9.7312	8.6800	1.0512	0.000
Vertical jump test	26.3750	31.5625	-5.1875	0.000
Illinois agility run test	16.1725	14.9644	1.2081	0.000
Harvard step test	89.1875	95.5000	-6.3125	0.000

Parameter I: Mean of pre-test, Parameter II: Mean of post-test, POT: Post-test which was taken at the end of 8th week proposed training scheduled - mean difference, PT=Pre-training test which was taken before selected training exercise program for differences of performance of basketball project players

completely reforms the performance of the research members. This also indicates that circuit exercise training was paramount for the variation of differences on the effects of physical fitness components of basketball project players. In general, while concluding, it may be stated that, within the limits of the present study, selected circuit training exercises contributed positively toward the improvement of cardiovascular endurance, power of the lower extremity, agility, speed, flexibility of the hamstring muscle of basketball project players as tested by Harvard step test, vertical Jump test, Illinois agility run test, 50 m sprint run test, and sit and reach test so that circuit training should include as an integral part of training program of basketball players.

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An Investigation into the Tendency to Choose the Optional Sports of Students at the University of Danang

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ABSTRACT

Physical education is one of the subjects that students can choose to learn and practice in colleges and universities around the world as well as in Vietnam. To examine the factors affecting the choice of student coursework, research was done on 936 students through questionnaires. The results showed that football, badminton, volleyball, and basketball are the popular sports that most of the students would like to choose to learn. The factors affecting the choice of the course are the understanding of the subject; the suitability of individuals and characteristics of subjects. Finally, based on these results, some recommends will be given to the physical education department and sports to help them to develop courses, curriculum, and teaching methods that are suitable for the expectations of the students.

Keywords: Physical education, Sports, Football, Badminton, Volleyball, Course selection of students

STATEMENTS OF PROBLEM

Physical education in school is a strategic mission of Vietnamese sport. This point has been made clear in constitution 92 (section 41) of the Seventh Secretariat of the Communist Party of Vietnam and many more document of the government. The strategic position of sports includes physical education in school being an important part of education and the base to develop sports talents. Physical education is actually a form of human investment since it is necessary for a person's universal development.

From the statistics of American economic expert collected in 50 years (1900-1959), it can be seen that profits increase by 3.5 times if physical investment increases by 4.5 times. However, if human investment increases by 8.5 times, profits will increase by 17.5 times. According to them, countries with high human investment also invest a lot into the sports and physical education. As a result, those countries' profits will also increase.

One of the most urgent matters of Vietnamese education at this moment is changing teaching and learning method following the idea of teachers being the guide to help learners

(who are the center) obtain knowledge on their own (Hoanh, 2003). According to Harmin and Toth (2006), it shows that "people can only learn 10% of what they read, 20% of what they hear, 30% of what they see, 50% of what they hear and see at the same time, 70% of what they discuss, 80% of their personal experience, and 90% of what they teach others".

Nowadays, with the development of science and information technology, people have less chance and time to train and develop their physical traits to improve their health for their work and study. Attracting students into physical activities and sports competitions is an important strategy to increase their health, their endurance, and their capabilities to adapt to the society's development. Understanding the trend of choosing the suitable sports for different ages, psychological traits, and tastes to create a base to build an education program that is both tempting and diverse is the purpose of this research.

METHODOLOGY

Subjects and their Information

The research uses the convenient object choosing the method (non-probability). In this method, the researchers approach

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the subjects in a convenient way. This means that the researchers can choose the subjects that they can approach. The reason for this is to save the fee and time. The drawbacks of this method are that the subjects' representativeness is not high. However, to overcome this, a relatively big population of subjects is chosen. We expect to receive 700 responses.

Data Collecting Organization

The data collecting method used is interview through the internet using google.doc to design the questionnaires. The questions are designed on google.doc and the ones in charge of collecting the answers are the PE teachers of the students. The collecting was carried out in 4 weeks, from March 16th to May 15th with 936 qualified responses received.

Research Process

This research is carried out through two main phases: First research with group interviews and official research using a quantitative method.

The first research is conducted through group interviews method. These interviews consist of groups of 10 people and hours of discussions. Details of a group: Students are divided into groups for discussion with the role of clearing the matter. Editing, skipping, or adding questions were conducted in this first phase of research.

The official research is conducted with the quantitative method. This research aims at checking the evaluation standards, which is the research model.

The standards are checked through two steps: Exploring factors analysis (EFA) and analyzing the reliability of the standards with reliable Cronbach alpha factor conducted through statistics processing software SPSS 18.0. After having all the factors, regression analysis is carried out to evaluate the research model.

RESULTS AND DISCUSSION

Subjects Description

After the distribution, the researchers receive 936 qualified responses. Among them, 50.5% are from male students and 49.5% are from female. Most of them are freshmen and sophomores from colleges and universities with the portion of students born in 1996 take 95.1%. The responders are distributed equally among the member of the Universities of Danang. Specifically, 21.75 of the students are from the University of Technology, 35.1% are from the University of Economy, 20% are from the University of Foreign Languages Study, College of Information Technology and The Medical Department.

The Prioritized Sports

In general, 32.7% of students prioritize soccer. After that, it is the portion of students who prioritize badminton with

28.2% and volleyball with 12.8%. The other sports such as basketball, martial arts, aerobic have relatively equal portion (about 8%). Ping pong and dodgeball are the ones that receive the least attention from the students with only 2% of the students think of them as the first priorities. Yoga or dancing is also not prioritized much among the students with the statistics of 6.9% and 4.8%.

In terms of gender, male students seem to favor soccer more than female ones do. 248 out of 473 male students choose soccer as their priority if they can choose the subjects (more than 50%). Right after that is badminton with 102 students (22%). Yet, only 58 out of 463 female students prioritize soccer (12.5%).

The trend of female students is different. The rate of priority is distributed quite diversely instead of focusing on one or some subjects like the male. The result of the analysis shows that the portion of students who prioritize badminton is the largest with 162 out of 463 students (35%). After badminton are aerobics and volleyball with the same portion (15%).

In conclusion, there are two clear trends. Most males choose soccer as their priority followed by badminton. On the other hand, the priority of girls is badminton followed by aerobic and volleyball.

Factors Affecting Students' Choices EFA

Kaiser–Meyer–Olkin (KMO) and Bartlett check in factors analysis show that KMO is quite high (0.921 to >0.5) with the rate of meaning as 0 (significant = 0.0000). This shows that the data are qualified for factors analysis.

After 2 times of EFA, deleting the DDM.1 factor due to low weight:

With the method of factor extraction principal components and the Varimax rotation, four factors were extracted with 58.254% variance extracted (Hair et al., 1998). The requirement is that the variance extracted must not be lower than 50%. As a result, 57.663% variance of the data is explained by these four factors. The variance extracted is qualified. Based on the rotated component matrix, all the variants have factors load coefficient bigger than 0.5 (0.508 is the lowest) so no variants is deleted after that.

Standards reliability check

After the EFA analysis, we recheck three variances extracted from Table 1 with Cronbach alpha coefficient, and the results are shown in Table 2.

The results show that all three factors have Cronbach alpha variants bigger than 0.6, and all observed variants have a correlation between variants and sum bigger than 0.3. Hence,

Table 1: EFA

EFA result			
	Factors		
	1	2	3
DDCN.3	0.843		
MDSH.4	0.841		
DDCN.4	0.818		
MDSH.1	0.766		
HBM.1	0.763		
DDCN.2	0.720		
MDSH.2	0.682		
MDSH.3	0.670		
HBM.2	0.657		
HBM.3	0.625		
CA.7		0.787	
CA.6		0.775	
CA.8		0.768	
CA.4		0.740	
CA.5		0.724	
CA.2		0.700	
CA.3		0.677	
CA.1		0.658	
HB.4		0.508	
DDM.4			0.732
DDM.3			0.723
DDM.2			0.702
DDM.5			0.666
DDCN.1			0.616
Variance extracted (%)	24.794	20.958	12.502
Total variance extracted (%)		58.254	

EFA: Exploring factors analysis

the standards are qualified in terms of number. As a result, this is the final EFA that will be used in the upcoming analysis.

The results also show that there are some changes in observed variants of the factors that affect the students' decisions to choose subjects:

- Factor 1 includes 10 observed variants: DDCN.3, MDSH.4, DDCN.4, MDSH.1, DDCN.2, HBM.1, MDSH.3, MDSH.2, HBM.2, and HBM.3. In general, most of them are variants of the group personal traits, understanding about the subjects, the capabilities to meet the expectations after learning. It can be seen that this is also a personal trait so it is named personal factors.
- Factor 2 includes nine observed variants: CA.1, CA.2, CA.3, CA.4, CA.5, CA.6, CA.7, CA.8, and HB.4. We can see that seven out of the eight above factors are of affecting factors. As a result, this group retains the old name affecting individuals.
- Factor 3 includes 5 observed variants: DDM.2, DDM.3, DDM.4, DDM.5, and DDCN.1. It can be seen that 4 out of the above 5 factors are subject special characteristics. Hence, this group retains the name subject characteristics.

With the above results, the model was changed into Figure 1.

H1: Personal factors such as understanding the subjects, expectations after learning, and personal traits that are related to the decision to choose that subject.

H2: Affecting individuals that are related to the decision to choose the subject.

H3: Subject characteristics that are related to the decision to choose that subject.

SUGGESTIONS

From the described statistics and analysis, some suggestions were made:

Table 2: Standards reliability check

Observed variants	Average standards if variants deleted	Standard variance if variants deleted	Correlation between variants and sum	Crombach Alpha coefficient if variants deleted
Factor 1: Cronbach's alpha=0.919				
DDCN.3	31.0417	69.191	0.770	0.906
MDSH.4	31.2703	70.266	0.789	0.906
DDCN.4	31.3686	69.185	0.775	0.906
MDSH.1	31.6400	70.519	0.730	0.909
DDCN.2	31.3825	70.703	0.692	0.911
HBM.1	31.4904	71.902	0.704	0.910
MDSH.3	31.7489	71.750	0.671	0.912

(Contd...)

Table 2: (Contd...)

Observed variants	Average standards if variants deleted	Standard variance if variants deleted	Correlation between variants and sum	Crombach Alpha coefficient if variants deleted
MDSH.2	31.6709	72.249	0.665	0.913
HBM.2	31.6891	73.472	0.586	0.917
HBM.3	31.6592	73.842	0.582	0.917
Factor 2: Cronbach's alpha=0.898				
CA.1	21.2500	52.423	0.624	0.890
CA.2	21.2682	52.502	0.655	0.887
CA.3	21.1325	52.265	0.616	0.890
CA.4	21.1421	50.659	0.734	0.881
CA.5	21.2265	51.820	0.678	0.885
CA.6	21.4167	52.534	0.699	0.884
CA.7	21.3408	52.336	0.690	0.884
CA.8	21.1774	51.173	0.738	0.881
HBM.4	21.0972	54.946	0.531	0.896
Factor 3: Cronbach's alpha=0.827				
DDM.2	11.2179	15.148	0.626	0.791
DDM.3	11.3739	15.422	0.637	0.789
DDM.4	11.1613	14.520	0.666	0.779
DDM.5	10.9626	15.063	0.624	0.792
DDCN.1	11.2329	15.946	0.561	0.809

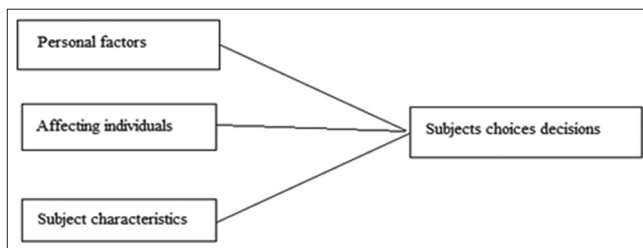


Figure 1: Research model

- Allow the students to choose subjects following their hobbies, specialties, the need to practice that meets their health status while learning and maintain the training of their favorite sports after graduation
- If the students want to sports that are both their hobbies and their forte, they need to build a more intense training program, organize tournaments in their subjects and are

chosen. Organize enhanced sports classes for students with talents in sports

- Employing teachers and trainers with suitable professional knowledge and build gyms to grant the students' needs to create a universal education environment.

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The Need to Establish Sports Counseling Centers at Universities from Students' Perspective

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ABSTRACT

The study is to investigate the importance of creating sports counseling centers at universities. The aim of this research is to demonstrate the necessity of creating sports counseling centers at universities and higher education institutions to improve the general health and physical fitness, identify, and correct various physical anomalies among students and help to create vitality and freshness in young generation society. The sample, in this study, includes 400 students and due to the relative equality of male and female students at the university, 200 female and 200 male students have participated in this study. The questionnaire includes 24 questions designed according to the hypotheses of the research. In the final conclusion of this study, more than 90% of male and female students believe that the presence of physical education teachers and experts in sports counseling centers is very effective, and they can help students to earn physical and mental health considerably and ultimately the creation of sports counseling centers in universities was necessary and these sports centers can help to increase students' general health ($P < 1\%$).

Keywords: Fitness, Students, Health, Sports consulting, Health problems

INTRODUCTION

One of the first steps to be taken in athletes' health is physical assessment and awareness of abilities, disabilities, and possible physical limitations of the athletes to identify and control the threatening conditions that lead to dangers and risks during the exercises. Today various medical boards and associations are deployed in sports stadiums and facilities and perform such tests and assessments. Through checking athletes' height, weight, vision, cardiovascular health, blood pressure, asthma, respiratory problems, and defects make their parents and coaches aware of their physical condition so that it is considered in the provision of training programs (Kashefi and Sheidaei, 2015). Body structure and function is such that it provides a good potential for gaining and maintenance. However, bad habits and wrong life patterns and related activities cause stress to the mechanism that can disrupt the body's structure and function. Posture is the body parts' arrangement relative to each other, and this physical state is optimal when there is a balance between muscles and

skeleton (Kendall et al., 2005). A lack of sufficient attention to the problem of prevention of injuries among students can have numerous unpleasant consequences including physical and psychological problems, the students' mental decline, leaving practical classes, staying away from training programs and negative an inappropriate viewpoint about physical education discipline (Aghaeinia, 1995).

In spite of reduced motion due to the industrialization of developed countries scientific innovations in sports science have increased life expectancy and longevity in these countries and the disease caused by increasingly sedentary lifestyle such as cardiovascular disease, obesity, osteoporosis, diabetes, and a variety of back pain are more emphasized (Gaini and Rajabi, 2009). One of the sciences the scientific properties of which are clear in cultural and social dimensions and plays an effective role in physical health, happiness, and leisure ad increased use of muscle capabilities is sports and physical education. That is why different countries in the world have considered a special place for physical education

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and sports in their law and developed various organizations and institutions to expand it (Teimournezhad and Asfestani, 2010). An important factor in the survival of organizations is high quality and empowered manpower. In other words, the importance of human resources is far more than the new technology, financial, and material resources. The role of efficient and capable human resource in achieving organizational goals is undeniably (Farahani et al., 2009).

RESEARCH THEORETICAL BASIS AND BACKGROUND

Exercising leads to happiness, vitality, and high self-esteem because the depressed has no or low self-confidence. Doing sports increases inner sense of satisfaction and the person feels that he has reached great positions. Exercise is effective in the treatment of many diseases including depression. About 30 min of exercise a day can reduce the signs of depression as much as some psychotherapeutic methods and antidepressants do (Madah, 2012). Given that the sedentary lifestyle has negative consequences on the employees' health and performance, many institutions invest on programs to provide the physical health of workers at workplace. The effects of the cost of such programs and their consequences in reducing absence in the workplace and reduced workers' cost of medication are reviewed precisely (Hekmatpoor et al., 2012). A study has addressed the relationship between unhealthy lifestyle and weight gain and obesity. In this study, there was a significant correlation between the body mass index and lifestyle such that by increasing the unhealthy lifestyle, BMI increases (Eghbali, 1993). In one of the studies, physical activity is considered as one of the most important subcomponents of lifestyle and has stated that physical activity plays an important role in the prevention of lifestyle-related diseases and health promotion (13). Haddad in examining the relationship between mental health and physical fitness of female athlete and non-athlete students of Tehran University concluded that there is a significant difference between the athlete and non-athletic girls' mental health (17). Barham et al. also concluded that there is a moderate association between physical fitness and body fat and coronary heart disease risk factors such as systolic

and diastolic blood pressure and people with better physical fitness have higher cardiovascular health and lower body fat (18).

METHODOLOGY

Due to the physical and mental problems faced by many male and female university students and the lack of chance to recognize them during schooling, the purpose of this study is to demonstrate the necessity of establishing sports counseling centers in universities and higher education institutions improve the general health, fitness, identifying, and correcting students' various physical and mental anomalies and helping to create vitality and freshness of the young generation society. This research is a descriptive and applied field study, and the researcher is determined to understand the importance of counseling centers through conducting a survey among students. Obviously, the results of this research can be applied in universities, higher education institutions, and other organizations. The researcher made five-point Likert scale questionnaire includes the options "very high, high, medium, low, and very low" the validity of which is measured by the experts and its reliability is obtained as 0.78 by Cronbach's alpha test.

As the University of Tabriz is one of the largest universities in the West and North West of the country, it is selected as the population and given that the population is about 20,000 students and considering Morgan's table, 400 male and female students are selected as sample for the survey and studied in two groups. It should be noted that this study was conducted in the second semester 2015-2016 academic year. In addition, to avoid biases the survey was not conducted on physical education students.

Data Analysis

According to Tables 1 and 2 and the results of the questionnaires, male and female students stated that physical education specialists in sports counseling centers can provide the required counseling to resolve physical abnormalities of students. Students believe that the presence of faculty members of physical education will increase in the quality

Table 1: Physical complication in female students

Physical complications	Overweight	Lordosis	Drooping belly	Low flexibility	Joint's pain	Muscle weakness
Number (%)	26 (13)	21 (10.5)	10 (5)	34 (17)	12 (6)	15 (7.5)

Table 2: Physical complication in male students

Physical complications	Overweight	Lordosis	Drooping belly	Low flexibility	Joint's pain	Muscle weakness
Number (%)	40 (20)	14 (7)	12 (6)	15 (7.5)	26 (13)	18 (9)

Some people may develop more than one complication

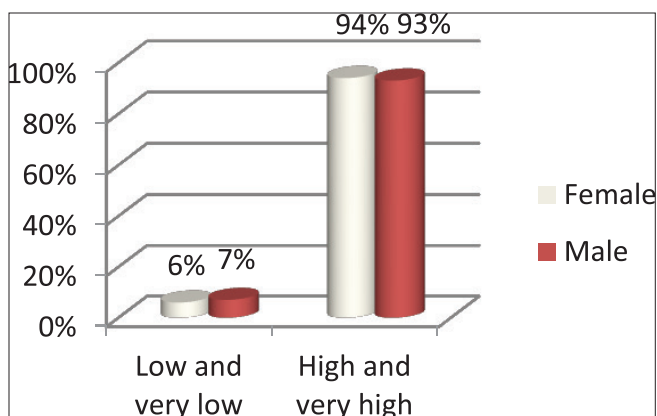
Table 3: The need to sports consulting centers to provide different sports services (female)

Students' opinion	O (%)	E (%)	$\frac{\{(E-O)-0/5\}^2}{E}$
High and very high	94	50	38.72
Low and very low	6	50	38.72
Total	100	100	77.44

Table 4: The need to sports consulting centers to provide different sports services (male)

Students' opinion	O (%)	E (%)	$\frac{\{(E-O)-0/5\}^2}{E}$
High and very high	93	50	36.12
Low and very low	7	50	36.12
Total	100	100	72.24

Table $\chi^2 \rightarrow (P < 5\%) = 3.84, (P < 1\%) = 6.63$

**Figure 1:** Students' opinion about the necessity of establishing sports consulting centers at universities

of services. Male and female students reported that the use of experts in physical education is important to provide the essential tips and advice. More than 93% of students reported that the presence of sports consulting centers at universities is essential to increase students' general health, Tables 3 and 4, ($P < 1\%$).

CONCLUSION

In final conclusion of this study, more than 90% of male and female students believe that sports counseling centers

at universities can provide enhance fitness of students by programs and sufficient exercise, provide a convenient location for students' counseling about nutrition, diet and exercise, and by providing good training, nutrition and exercise programs provide a substantial contribution to obtain fitness. They can be helpful in reducing mental problems such as stress, anxiety and depression and help them to increase self-confidence, happiness, and vitality. The presence of physical education teachers and experts in these centers is very effective and can provide important contributions to students in gaining physical and mental health and finally creating sports counseling centers in universities is essential it can help to increase students' general health ($P < 1\%$) (Figure 1).

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The Political and Legal Requirements to Realize Desirable Broadcasting Rights in Football of Iran

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ABSTRACT

The broadcasting rights are the recognized right of football in the world; in this regard, however, Iran still faces major challenges. This study aimed to provide practical solutions to solve the problem of broadcasting rights in football of Iran. This was qualitative-exploratory study. The grounded strategy was used in this study. Using open coding, axial coding, and selective coding, this study tried to summarize the data and ultimately, achieve a desirable model. The purposive sampling method and snowball technique were used for selecting samples and conducting deep interviews. Totally, 39 interviews were conducted. The sampling was continued until reaching a saturation point. After coding, finally, the data were classified into six groups: Governmental requirements, economic and cultural requirements, designing alternative mechanism, management and structural requirements, designing solutions to resolve political, legal, and religious barriers and designing the broadcast rights mechanism. The political and legal requirements included: Strict rules about broadcasting rights in International Federation of Football Association (FIFA), legal gap in not paying broadcasting rights, FIFA rules apply in countries with commercial laws, matching the rules and policies with sports in the world, political relations, which create failure conditions, lack of political interactions in federation, lack of confidence in government about the federation, TV monopoly, lack of scientific base, performing training activities for managers, and determining administrative and academic people in board of federation.

INTRODUCTION

The mass media has a unique role in the development of different phenomena such as sports. As long as the role of media in sports events was not clear, the tournament organizers also had not have much success. By increasing the importance of media in broadcasting sports news, today, the lack of media attention, such as television to sports, will be equal to its slow death. The mass media including radio and television play an important role in social changes, economic growth, and development of sports culture. Another influencing factor of mass media, especially television is their economic impact on sports organizations through broadcasting rights. If the desired

model of implementing broadcasting rights of football in Iran will be used, there will be the desired relationship between media and football; therefore, the football may benefit from an important source of income, and the media may display games with desirable quality. Since privatization is increased in Iran, the private football clubs are also increased. These clubs consider the broadcasting right as a main source of income. If the desired model of broadcasting rights will be designed, the private clubs may create a desired relationship with media. The media is also required to cover football matches because it has been shown in several studies that football is the most popular sports in many countries in the world. In a study entitled (position of sports in leisure time of people in Iran), the

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football was introduced as the most popular sport; more than 30% of respondents noted the football as the first and most popular sports to perform in their leisure time.

METHODOLOGY

This was a qualitative study. The qualitative research is a complex process that requires a relatively long time. In this process, focusing on opinions of participants, the data are analyzed using inductive inference. Then, the research report presents the results of the research process. There are many qualitative research methods; the grounded theory is the most reliable method.

Two sociologists, Glaser and Strauss, proposed grounded theory method in 1976. The grounded theory is a qualitative

research method; using it and a set of data, one theory is evolved. In a wide scale, this theory explains a process, action, or interaction. The process theory results from the implementation of this research method. This method is used when a theory is needed to explain a process.

For novice researcher in qualitative research, this method provides step by step and systematic way to analyze the data. As a systematic method, the researchers in quantitative behavioral research are willing to use it. The process of grounded theory method has many features such as self-correction. Furthermore, the researcher deals with data during data analysis process.

The population consisted of 39 experts in the field of broadcasting rights in Iran.

Table 1: Extracted codes

Selective codes	Number
Strict rules about broadcasting rights in FIFA	1
Legal gap in not paying broadcasting rights	2
FIFA rules apply in countries with commercial laws	3
Matching the rules and policies with sports in the world	4
Political relations which create failure conditions	5
Lack of political interactions in federation	6
Lack of confidence in government about the federation	7
TV monopoly	8
Lack of scientific base	9
Performing training activities for managers	10
Determining administrative and academic people in board of federation	11

FIFA: International Federation of Football Association

Findings

The data analysis was performed using encoding method in three steps: (1) Open coding, (2) axial coding, and (3) selective coding. Finally, the selective coding constituted the classes (Table 1):

DISCUSSION AND CONCLUSION

The domestic laws of the Islamic Republic of Iran do not support the broadcasting rights, but international laws support it widely such as article 72 in Statute of International Federation of Football Association (FIFA) (13). Due to Iran's membership in FIFA, all of its rules are accepted by the Islamic Republic of Iran; however, there has not still taken any fundamental step to pay the broadcasting rights to owners of football industry in Iran. It should be noted that recently, the Article 75 in new statute of football federation, the federation and its members are mentioned as real owners of all rights, which are obtained in competitions, such as broadcasting rights (14). However, the monopoly of television violates all these laws (Table 2).

Table 2: Most important legal gaps in broadcasting rights

Stand to payment	Relation with broadcasting rights	Level	Reference	Legal gaps	No.
Agree	Indirect	National	Constitution of the Islamic Republic of Iran	Article 44 in constitution	1
Disagree	Indirect	National	Constitution of the Islamic Republic of Iran	Legal contradiction with Article 75 in constitution	2
Agree	Indirect	National	Fourth development plan	Clause "z" of Article 117 in Fourth Development Plan	3
Agree	Indirect	National	Fifth development plan	Clause "b" and Article 13 in Fifth Development Plan	4
Agree	Direct	National	Government	Protection Law of Authors, Composers, and Artists	5

(Contd....)

Table 2: (Contd...)

Stand to payment	Relation with broadcasting rights	Level	Reference	Legal gaps	No.
Agree	Direct	International	FIFA	Article 72 in Statute of International Federation of Football	6
Disagree	Indirect	National	IRIB	Chapter V of Statute of IRIB, 27/7/1362, Article 22	7
Disagree	Indirect	National	Statute of IRIB	IRIB Statutes approved by parliament on 27.07.1362	8
Agree	Direct	National	Iran Football Federation	Article 75 of Statute of Football Federation	9
Agree	Direct	National	Iran Football Federation	Article 76 of Statute of Football Federation	10
Agree	Indirect	National	Iran Football Federation	Article 20 of Statute of Football Federation	11
Agree	Direct	National	League regulations and statute of football federation	Income sources of clubs, league regulations (Article 13) and the Statute of Football Federation (Article 69)	12
Agree	Direct	International	Statute of FIFA	Article 49 of FIFA regulations	13
Agree	Direct	National	Statute of football federation	Article 82 of Statute of Football Federation	14
Agree	Direct	National	This bill was signed at Interior Ministry	Approved by Youth and Sports Minister, head of IRIB, and Interior Minister on 12/09/93, Clause 3	15
Agree	Direct	Organizational	IPTV	(2015) between football federation and IRIB Agreement	16

FIFA: International Federation of Football Association

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The Relationship between Blood Lactate and Albuminuria after Strenuous Activity in the Non-athlete Boys

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ABSTRACT

Albuminuria is a kidney disease means the presence of albumin in urine. However, the exercise albuminuria that usually occurs after physical activity. However, under normal conditions through mechanisms of size and electrical charge selection, the kidney restricts the clearance of molecules as large as albumin. Post-exercise increases in albuminuria occur following the physiological stress of intense exercise, most likely as a result of the exercise-induced blood acidity changes which lead to a change in the arrangement of the albumin molecule, and subsequently, the filtration characteristics of the glomerular capillary wall. The aim of this study was to examine the relationship between blood lactate and albuminuria after a strenuous activity in the non-athletic boys. Thus, 27 disabled adolescent boys, age range 12-14 years, were selected as sample. Subjects in a group with an active schedule as a continuation of 1600 m ran. Urine tests before and 24 h after the activities were measured and blood lactate measured before and immediately after the activity for statistical analysis t-test was used to compare variables, and Pearson correlation was used for the relationship between variables. Analysis of data showed that the excretion of albumin before and 24 h after the operation, there was a significant difference ($P \leq 0.001$), and there was no significant relationship between blood lactate with albumin. A session of intense activity continued to increase urinary excretion albumin 24 h after the activities to be disabled in adolescent boys, but there is not a significant relationship between blood lactate and albuminuria.

Keywords: Intensive activity, Albuminuria, Adolescent boys

INTRODUCTION

Albumin has a macromolecular weight of 66,000-69,000 Daltons (Chang et al., 1975; Schwick and Marburg, 1978) and a net anionic (negative) electrostatic charge (Chang et al., 1975; Ryan, 1981). As plasma protein responsible for transporting molecules throughout the body and maintaining colloidal osmotic pressure (Schwick and Marburg, 1978), under normal conditions, the albumin molecule does not enter the glomerular filtrate but remains in circulation by passing through the Bowman's capsule from the afferent to efferent

arteries. Degradation of the permselective qualities of the GCW enables high macromolecular weight plasma proteins (albumin) to pass into the urinary space. Glomerular capillary diseases, such as the various forms of nephritis, are pathologic conditions leading to the degradation of the glomerular capillary filter, and subsequently, increase the concentration of plasma proteinuria or albuminuria (Ryan, 1981), under exercise conditions, Todorovic et al. (1972) and Poortmans (1981) showed that post-exercise proteinuria occurs because of exercise-induced alternations in blood acidity. Exercise increases the concentration of hydrogen ions within the blood.

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The hydrogen ions are free to bind to the negatively charged carboxyl terminus of the glycoprotein tunic on the glomerular capillary wall (GCW), and thus, inhibit the charge-restrictive feature of the capillary wall. By inhibiting the charge restrictive feature of the GCW, the albumin molecule can enter the endothelial fenestrae (space), and various studies (Poortmans and Labilloy, 1988; Poortmans and Henrist, 1989; Poortmans et al., 1990) have concluded that increased exercise intensity causes an increase in venous lactate levels >5 mmol/L, which changes the permeability of the GCW and impairs the tubular reabsorption abilities, allowing albumin and proteins to enter into the urine. Protein excretion levels remain at normal ranges as long as the lactate levels are under 5 mmol/L (Poortmans and Labilloy, 1988; Poortmans and Henrist, 1989; Poortmans et al., 1990). Strenuous exercise-induced albumin excretion may be linked to the increased glomerular membrane permeability, whereas the increased excretion of low molecular weight proteins may indicate renal tubular dysfunction (Poortmans et al., 1997). The authors state that moderate/sub-maximal exercise mainly affects the glomerular permeability, whereas intense exercise affects both the glomerular and renal tubular structures. Due to parasympathetic responses to exercise, there is also a decrease in renal blood flow caused by vasoconstriction of the afferent and efferent renal arteries. Vasoconstriction of the arteries results in an increase in filtration fraction and glomerular filtration rate of protein (McInnis et al., 1988). The movement of the albumin molecule beyond the size restrictive glomerular basement membrane occurs because the albumin molecule is forced across the GCW following the re-establishment of blood flow and blood pressure to the renal vasculature on completion of the exercise bout. The re-establishment of renal blood flow, following exercise, leads to a concomitant re-establishment of blood pressure to the renal vasculature and thereby produces a washing-out of the glomerular sieve (Castenfors, 1977). Castenfors (1977) suggested that blood pressure on the endothelial side of the GCW forces plasma lodged in the elastic-like spaces of the glomerular basement membrane across the GCW. The author referred to this effect as the “stretched pore phenomenon.” Research by Ryan (1981) supported the principles of Castenfors theory but added the important consideration that, although the blood pressure gradient may be effective in influencing the transglomerular passage of the albumin molecule, one must consider that the albumin molecule is not a rigid sphere traveling through fixed pore structure (Deen et al., 1979). According to Ryan (1981), some molecules have the ability to undergo a process of “reptation” or uncoiling. By changing the isoelectric point of albumin and the charge restrictive feature of the GCW, an uncoiled albumin molecule would be allowed to cross a neutralized, pseudo collagenous membrane (Purtell et al., 1979). Todorovic et al. (1972) suggested that the increased hydrogen ion concentration of urine could change the colloidal state of filtered proteins. Such a change could affect tubular reabsorption of proteins, and thereby lead to increased concentrations of total protein in post-exercise urine.

The aim of this study was to compare albumin excretion 24 hours before and after a strenuous activity as well as the relationship between blood lactate and albumin excretion after the activity.

METHODS

Subjects

In the present study, 27 volunteers were recruited qualified disabled boy, and healthy subjects with respect to the information contained in the questionnaire, personal information, medical history, and their health were measured. And physical education at school during the week and did not have any specific exercise. The participants in the 6 months before the test had any kidney disease and surgery (Table 1).

Protocol

Subject to the test protocol was run 1600 m around the track with a schedule to be completed duration of the race. 24 h before and after the test participants had similar feed.

Blood and urine analyses albumin induced by gamma-glutamyl transferase activity can be used to determine. For physical activity, 24-h urine collection before and after physical activity and sports are used to determine albuminuria. Blood lactate measured before and immediately after the activity. To measure the percentage of body fat with caliper, two point formula - Lumann and Slater - was used.

Statistical Analysis

The Kolmogorov–Smirnov test was applied for testing each variable's normality. For statistical analysis, t-test was used to compare variables, and Pearson correlation was used for the relationship between variables.

RESULTS

Table 2 shows the statistical results of the variables before and after exercise.

According to Table 3, the analysis showed that there is a significant difference between albumin before and 24 h after the activity ($P \leq 0.001$).

Table 1: Physical characteristics of subjects

Variable	Means \pm SD
Age (years)	13.22 \pm 0.80
Height (cm)	158.89 \pm 9.56
Weight (kg)	45.52 \pm 5.53
Fat (percent)	7.66 \pm 4.13
BMI (kg m)	17.98 \pm 0.99

BMI: Body mass index, SD: Standard deviation

Table 2: Statistical results of the variables before and after exercise

Variable	Before activity	After the activity
Albumin (mg/l)	23.26±7.86	60.63±25.44
Blood lactate	2.87±1.31	11.47±2.03

Table 3: Comparison of albumin before and 24 h after the operation

Variable	Df	Significance of level	T
Albumin	26	0.001	-7.374

Table 4: Pearson correlation between blood lactate and albumin

Variables	After the activity	
	r	P*
Lactate-albumin	0.025	0.901

*P ≤ 0.05

According to Table 4, obtained P value is not significant at the level 0.05. In other words, the blood lactate immediately after exercise and albumin excretion, 24 h after activity, there is not significant relationship.

DISCUSSION

In this study, it was observed that albumin excretion increases after exercise which is consistent with previous research. The increase in post-exercise concentrations of urine albumin supports the hypothesis of Todorovic *et al.* (1972) that the glomerular filtration of albumin can be influenced by exercise-induced changes in blood pH and blood lactate. Poortmans *et al.* (1990) also stated that the significant associations observed between post-exercise albumin and exercise-induced increases in blood lactate concentrations confirm previous observations that albumin clearance is related to exercise intensity. A study of Poortmans (1984) on post-exercise proteinuria attempt to explain the relationship between workload, blood lactate, and kidney function during exercise.

However, there is not a significant relationship between blood lactate and albumin excretion, and that is not consistent with Motelpare *et al.*, 2002; Poortmans and Labilloy, 1988; Poortmans *et al.*, 1990.

CONCLUSION

As it was shown, the results showed that a significant increase in urinary excretion of continuous session of intense activity

albumin placed 24 h after the activity. However, there is not a significant relationship between blood lactate and albumin excretion. These findings suggest that blood lactate is not albumin excretion mechanism.

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A Study of the Job Stress on Physical Education Teachers

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ABSTRACT

In the present study, efforts have been made to make a job stress between government, semi-government, and non-government secondary schools' physical education teachers of Gujarat State. In terms of school management out of total 600 subjects, 82 were from government schools, 433 from semi-government, and 85 from non-government school physical education teachers were selected randomly from Gujarat state. Job stress questionnaire by Palival was found to be most suitable and reliable for the purpose, so the researcher utilized of them. The analysis was done by adopting statistical ANOVA (F-ratio) and mean. We find that physical education teachers of non-government have the maximum job stress; next come, physical education teachers of government schools, those of semi-governments school are last in it. This study will play an important role in providing motivation and inspiration to physical education teachers and increasing their social status.

Keywords: Job stress, Government school, Semi-government school, Non-government school, Secondary school, Physical education teacher

INTRODUCTION

President Lincon states, "Physical education is the educations of the body, by the body and for the body." All the educationists of the world have accepted that physical education can promote physical, mental, social, and emotional development of an individual (Solanki and Patel, 2001). Physical education endows students with so many lofty values and qualities such as physical and mental readiness, insight, discipline, cooperation, good moral character, respect, love toward others, nobility, and good human relations (Patel et al., 2005).

Physical education teacher and school environment have a pivotal role in the comprehensive development of students. The youths wishing to be physical education teachers can make a good career in this field, if they have interest, attitude, perception, study, and vocational skill. According to Boosar, ideal physical education teachers are supposed to have a chain of multiple social, spiritual, ethical, and emotional values and qualities such as moral character, leadership, honesty, ingenuity, attractive personality, absence of physical ugliness, best dynamic power, dynamic skill high intelligence,

erudition, best social rational competence, interest in learning as cooperative attitude, oral and written expression ability, and coordination of activities. The physical education teacher having the above virtues should get job satisfaction or job stress.

Job satisfaction indicates the degree of joy and happiness that an individual derives from his job. How does a person feel for his job depends on multiple components and factors. Physical education teachers receive job satisfaction or job stress from various sources such as economical status, service security, workload, chances of achievements, vocational and academic qualifications, years of experience, cooperation of officers and fellow workers, and social status. Where there are vocational satisfactions, less stress is seen. Where there are no vocational satisfactions, some type of vocational stress appears, which directly or indirectly affects their practice, behavior, and conduct and affects adversely his work, and at last, it results in the obstruction of development. Under stress, a physical education teacher cannot work well. He cannot show perfect enthusiasm and interest to teach the students new things and to give them practice. He will be

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indifferent toward the development of students or school. He will not utilize spare time positively, neither he will try to utilize his maximum potential. This will adversely affect physical education and sports activity.

Objective of the Study

In this study, a comparative study of the job stress between government, semi-government, and non-government secondary school physical education teachers of Gujarat state. Result of this study will provide a useful background to the headmasters of schools, administrators, and education department of the state to modify the administrative procedure and to make necessary changes in the program related to physical education and games and sports. Moreover, results of this study will play an important role in providing motivation and inspiration to physical education teachers and increasing their social status.

Hypotheses of the Study

For the present study, the researcher makes hypothesis according to his own opinion that the job stress will be high in physical education teachers of secondary schools of Gujarat state.

Sample for the Study

For the purpose of the present study, a total of 600 physical education teachers were selected randomly from all the 25 districts of Gujarat state in 2007. In regard to school managements, out of total 600 subjects, 82 were from government schools, 433 from semi-government school, and 85 from non-government schools.

Tool Used

The researcher decided to use questionnaire tool to collect the necessary data for the solution of the problem. The researcher while trying to find out the questionnaires most suitable for the present study contacted various libraries, booksellers, publishers, and collection questionnaires from those sources and studied them deeply, interacted with experts in terms of their limitations. At last, he found the job stress questionnaire by Palival to be most suitable and reliable for the purpose, so he used of them.

Analysis Statistical

For comparative study of job stress of physical education teachers of secondary schools of Gujarat state, the analysis was done by adopting statistical mean and "F" ratio. The data were analyzed by Statistical Package for Social Sciences (SPSS).

FINDINGS AND DISCUSSION

The comparative results of job stress on secondary school physical education teachers are shown in ANOVA Table 1.

Looking at the ANOVA analysis in Table 1, we can see that $F\text{-ratio} < F\text{ tabulated value}$ is at 5% significance level. This means that the value of F-ratio is less than that of F tabulated, so it can be said that there is no difference of physical education teachers working in government, semi-government, and non-government schools of Gujarat State. Hence, the comparative idea of their job stress sought through average (mean) analysis. The details can be seen in Table 2.

Table 2 reveals that the result of comparative study of job stress experienced by physical education teacher of secondary school of Gujarat state, based on school management. Physical education teachers of non-government secondary school have the maximum (37.977%) job stress. Next come, physical education teachers of government secondary schools (33.329%), those of semi-government school are last in it (32.822%).

The factors responsible for job stress in physical education teachers of non-government school had the maximum vocational stress due to factors such as limited pay, limited allowances, insecurity of service, extra workload, and responsibility of other works. While physical education teachers of government secondary schools experience stress due to limited chances of progress, political pressure, attaching little importance to physical education department, more number of officers, etc., Absences of innovation and evaluation of objective work were the sources of stress in physical education teachers of semi-government secondary schools. It is also agreed in the previous studies by Dorothy (1990) and Rechardson (1989).

Table 1: Government (N=82), semi-government (N=433), and non-government (N=85) secondary school physical education teachers' ANOVA for the data on job stress

Variance	Sum of squares	Df	Mean of square	F-ratio
Between	1895.748	2	947.874	1.988
Within	284669.37	597	476.833	

Significance at 5% level. Significance tabulated level F 05 (2.597)=3.01

Table 2: Comparative analysis of mean of job stress of physical education teachers of government, semi-government, and non-government secondary school

Type of school management	Number of teachers	Job stress mean
Government	82	33.329
Semi government	433	32.822
Non-government	85	37.977

Suggestions

It is recommended to executives and officials to take policy decision that can decrease the job stress of physical education teachers, considering the points in finding and discussion part.

The degree of job stress seems to be rather high. Executives and education department should take steps to reduce their stress. It is recommended to take up this type of study in other parts of the country.

It is recommended to take up this type keeping in view, the physical education lecturers working at college level, too. It is recommended that this type of study should be taken up in two different states, and state-wise comparative study should be made. It is recommended that this type of research study should be taken from time to time and findings of past and present studies should be compared.

CONCLUSION

In the beginning of this study, a hypothesis was made that the job stress will be high in physical education

teachers of secondary schools of Gujarat state. But while evaluating the result of the study, it was found that the job stress was 35.16%. This means that the degree of job stress is average.

Investigating the reasons of the result received, it was found that the job stress of selected subjects was due to many factors; they offered special contribution in their work field, they were enthusiastic, active, having a notable place in their own schools and community and social states.

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A Comparative Study of Competitive Sports Anxiety among Indian and Bangladeshi Players

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ABSTRACT

This was a comparative study of competitive sports anxiety among Indian and Bangladeshi Kho Kho players. Thirty Kho Kho players (each 15 in a team) who had participated in the 2nd Asian Championships 2016 held at Indore, Madhya Pradesh, India, were selected to serve as subjects for the study. Criterion measures were scores obtained in the sports competition anxiety test questionnaire developed by Rainer Marten. A significant difference was found between the Indian and Bangladeshi players on sports competition anxiety. Means, standard deviation, and independent t-test were used to analyze the data, and the level of significance was set at 0.05.

Keywords: Kho Kho, Sports competition anxiety

INTRODUCTION

Psychology is a science of behavior of the organism. The word “psychology” has come from the Greek word “psyche” meaning “soul” and the “logos” meaning study. In the ancient times, psychology was not a separate discipline. Now, it has developed into a scientific discipline (Singh et al., 2013). Sports psychology is a science in which different components of psychology play a key role in a sports or exercise setting. These components make a difference in performance, and help every sports participant’s performance to reach his or her potential as an athlete. The term anxiety is usually defined as a vague, diffuse, unpleasant feeling of fear, and apprehension to loose or win. Anxiety is the displeasing feeling of fear and concern.

Anxiety has been a central concept for sports psychology and has received a huge amount of investigation because of its influence on performance. Anxiety plays an important role in the acquisition of motor skills as well as athletic performance. Anxiety can either increase or decrease the performance. In general, there are two types of anxiety that are state anxiety and trait anxiety. State anxiety involves feeling of apprehension, tension, fear, and increase in physiological arousal. This is an immediate emotional state response to specific situation (Subhabrata, 2013). Success and failure

in competitive games and sports depend on the series of emotions. Players may feel worried, tensed, stressed, and fear prior to or during a competition. Uncertainty causes anxiety in players. The significance of the event, level of competition, and crowd contribute to player’s anxiety (Peden, 2007). Competitive anxiety is the tendency to determine antagonistic situations and take action accordingly with feelings of stress, pressure, and nervousness (Martens et al., 1990). The competitive anxiety instantly accelerates just before the competition and suddenly decelerates after the competition (Gould et al., 1984).

METHODOLOGY

This was a comparative study of competitive sports anxiety among Indian and Bangladeshi Kho Kho players.

Selection of Subjects

For this study, thirty male Kho Kho players were selected as subjects, 15 from Indian and 15 from Bangladeshi Kho Kho teams. The age of the subjects ranged from 16 to 30 years.

Tools and Data Collection

Data were collected through standardized questionnaire sports competition anxiety test (SCAT) developed by Rainer Marten. SCAT questionnaire consists of 15 multiple choice

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questions and out of them, five were spurious questions which are added to the questionnaire to diminish response bias toward the actual test items.

Scoring of the Questionnaire

The answers of the questionnaire were from three options- hardly ever, sometimes, and often that carry 1, 2, and 3 marks, respectively. The ten test items which are taken for the scoring purpose were 2, 3, 5, 8, 9, 12, 14, and 15. Question No. 6 and 11 scored reverse as 3, 2, and 1. Spurious questions, i.e., 1, 4, 7, 10, and 13 were not scored out as suggested by Rainer Marten.

Collection of Data

Data were collected from Indian and Bangladeshi teams' Asian Kho Kho championship held at Indore, Madhya Pradesh, India, in 2015-2016. All the subjects were instructed to respond independently. There was no time limit for the completion of the questionnaire, they were distributed one hour before the match and the subjects were instructed not to ponder too long over any statement and respond all the statements in the questionnaire independently.

Findings

To analyze the data of the study, descriptive statistics was applied for comparing the competitive sports anxiety test scores of Asian Kho Kho championship players. Independent t-test was used. The level of significance for t-test was set at 0.05.

Data pertaining to competitive sports anxiety of Indian and Bangladeshi Kho Kho players are shown in Table 1.

Table 1 shows that there was a significant difference between the Indian and Bangladeshi Kho Kho players on competitive sports anxiety, as obtained t value was 2.13, which is greater than the tabulated $t_{0.05}(28) = 1.701$. The mean and standard deviation of Indian and Bangladeshi Kho Kho players on competitive sports anxiety was as follows; Indian Kho Kho players: 18.4 ± 2.38 and Bangladeshi Kho Kho players: 20.2 ± 2.24 . Graphical representation of mean and standard deviation of Indian and Bangladeshi Kho Kho players on competitive sports anxiety is shown in Figure 1.

DISCUSSION AND CONCLUSION

To measure the level of competitive sports anxiety between Indian and Bangladeshi Kho Kho players. The result indicated that there was a significant difference between Indian and Bangladeshi players. The mean score of the Bangladeshi Kho

Table 1: Mean, standard deviation, and t-ratio of competitive sports anxiety of Indian and Bangladeshi Kho Kho players

Groups	Mean	SD	MD	t-value
India	18.4	2.38	1.80	2.13*
Bangladesh	20.2	2.24		

Significant at 0.05 level, tabulated $t_{0.05}(28)=1.701$. SD: Standard deviation

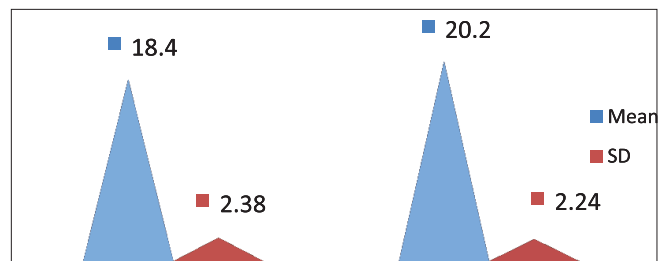


Figure 1: Mean and standard deviation of Indian and Bangladeshi Kho Kho players on competitive sports anxiety

Kho players was higher than the Indian players. It can be concluded that Bangladeshi players have higher anxiety level than Indian players. There are a number of inconsistencies between these findings. This could be the consequence of using different training programs and competitions. It may be related to the situation that arouses the level of anxiety. Moreover, the other reason for the low level of anxiety of the Indian players may be the advantage of home ground for the competition.

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Employees' Health and Wellness, Productivity, and Job Satisfaction: Basis for the Development and Integration of a Fitness Program into Palawan State University's Organizational Routine

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ABSTRACT

The purpose of this study was to examine the relationship between employees' health and perceived performance, productivity, and satisfaction. A total of 146 non-teaching personnel from the different offices of Palawan State University (PSU) were the sample respondents. The instruments used were questionnaires and interview. To determine which among the covariates - blood pressure, pulse rate, body mass index, and percent body fats exert the greatest influence on respondent's work performance and productivity, multiple regression procedure was employed. It can be concluded that respondents' pulse rate and nomogram are significantly related to their perceived job satisfaction, whereas pulse rate is the only predictor of work performance and productivity. In general, the respondents still believe that the human resources of PSU perform their job with competence and proficiency.

Keywords: Health, Wellness, Job satisfaction, Productivity, Non-communicable diseases, Worksite program, Worksite health promotion, Body mass index, Nomogram

INTRODUCTION

An organization is only as good as its people. Palawan State University (PSU) as an academic institution relies on its faculty and staff members to realize its vision of "a premier State University in the Southeast Asia that provides excellent and relevant higher education for sustainable development." Siedentop (2009) argued that employees, who are more fit and healthy work more productively, are absent less often and cost companies less in insurance claims. Thus, a healthy workforce is vital to any organization.

However, the prevalence of non-communicable diseases (NCDs) continued to rise in the Philippines and considered a major public health concern worldwide. The burden of illness due to NCDs is great accounting for 60% of total deaths globally and contributes to 40% of universal disease burden.

The World Health Organization (WHO, 2005) projected that if no action is done in the present, these rates will increase to as high as 73% to total deaths and 60% to disease burden, respectively, by 2020.

What is health and why this is important? The WHO defined health as "optimal well-being that contributes to one's quality of life. It is more than freedom from disease and illness, though freedom from disease is important to good health." In recent years, experts in the field of health and medical science have regarded wellness as one important component of health as exemplified by "quality of life" "a sense of well-being" and meaningful work (Corbin et al., 2009).

According to Badland and Schofield (2003), there is a growing trend for workplaces worldwide to conduct the physical activity and health programs to help overcome

the burden of lifestyle-related illness and increase worker productivity. In the Philippines, more and more companies are either planning or have already integrated and wellness programs into their organization's routine.

At present, PSU has no workplace health program to speak of. This lack of fitness program for employees may have a significant effect on the health of the university's workforce. This is evident in the significant number of sick leave applications. The average sick leave application from 2007 to 2012 is 1276, which are considerably higher compared to other types of leave filed by PSU employees.

According to Badland and Schofield (2003), this high absenteeism turnout may have an effect on worker's productivity. Improving physical activity may reduce absenteeism, ultimately improving employee's quality of life and help reduce costs to the organization. Reviewed literature in the area of work performance reveals that a well-implemented fitness program cannot only improve the health status of participants but also improve their work performance. According to Wattles (2003), worksite fitness programs are gaining popularity because of the potential to lower absenteeism and job turnover and increase job productivity and morale.

Many employers are investing large amounts in fitness program because of the benefits that it brings to the employees as well as the organization. According to Falkenberg (1987), organizations that support these programs consider them an inexpensive benefit that produces the following returns: Increased ability to attract competent employees, improved attitudes and loyalty, reflection of the firm's concern for the non-work aspects of the employees' lives, and indirectly, increased productivity.

Moreover, Falkenberg (1987) added two lines of reasoning that underline these beliefs. These are employees' fitness programs may reduce the impact of stress and increasing the fitness level of employees should improve productivity.

However, amidst these research findings, Baptiste (2008) noted that the importance of employee's well-being at work has been a neglected area of inquiry in human resource management. Furthermore, Henley and Redmond (2006) commented that the workplace is still underutilized as a site to promote healthy lifestyles and many workplaces, with their high level of labor-saving devices, contribute to poor staff health by encouraging sedentary behavior.

With these continuing practices and attitudes at the worksite, Kelly (2004) suggests that workplace should provide a unique setting to promote a holistic approach to health by adopting company policies on issues such as smoking, alcohol, nutrition, and physical activity. On the other hand,

Urwin (2006) proposes that workplaces should actively deliver and facilitate health promotion because "during working hours, the workforce is more susceptible to health education programs such as healthy eating, smoking cessation, and stress prevention," "Those that have taken account of health and safety directives should ensure that the working conditions are made as friendly and comfortable as possible (Kelly, 2004)." Even though the benefits of health and fitness are acknowledged, there is a growing body of research on the effects of physical activity on physical and psychological health, the relationship between health, fitness, productivity, and job satisfaction has been sparse. These and the lack of a fitness program for PSU employees shall be addressed by this paper. Recognizing the importance of worksite programs and the benefits that employees and the university will derive from it, this paper will develop a fitness program for possible integration into PSU's organizational routine.

To achieve this end, this paper has identified health and wellness status of PSU employees and its relationship to employee's perceived productivity and job satisfaction. The result from this study becomes the basis in the development of a worksite wellness program tailored to the employees' needs and become part of the regular conduct of business. Specifically, it has the following objectives: Assess the current health and/or wellness status of PSU employees through body mass index (BMI) screening, percent body fat (PBF), and blood pressure and pulse rate measurement; assess employees perceived productivity and job satisfaction; and examine the relationship among employees' health/wellness status, productivity, and job satisfaction.

METHODOLOGY

The researchers made use of a descriptive survey. A random sampling was used in the selection of the respondents. 148 non-teaching personnel from the different offices of PSU took part in the health assessment that was conducted from June to August, 2013. The sample size was picked using the interval method.

The instruments used in this study were questionnaires and interview. The questionnaire covers three sections: Section A was used to determine employees' demographics such as age, sex, marital status, number of children, degree earned, appointment type, monthly income, and length of service and was validated whereby contents of the instrument were looked into. Questionnaires were given directly to the participants at their worksite; Section B measured employees perceived work performance and productivity, and Section C measured employees' satisfaction of their job.

Section B and Section C of the questionnaire were a combination of questions on work experiences, performance,

productivity, and job satisfaction adopted from the WHO's Health and Work Performance Questionnaire (HPQ) (2002). This questionnaire has been used in the study of Kessler et al. (2003 and 2004). Questions on productivity and job satisfaction were also adopted from the study of Wattles and Harris (2003).

A health assessment was given to the respondents a week earlier to determine employees' BMI, pulse rate, blood pressure, and PBF. The BMI is a way to estimate the degree of underweight or overweight among children, youth, and adults. It is used in this study because of the availability of height and weight measures and is an estimate of actual levels of body fat (Siedentop, 2009). Resting heart rate is obtained by getting the pulse at the radial artery of the lower forearm. The number of beats is counted for 60 s.

A nomogram was used to determine the relative PBF (RPBF) for both sexes. The RPBF was based on body weight and waist circumference for men, and hip circumference and height for women (Wilmore, 1986 as cited by Catapang, 2000). Acceptable PBF for decreased health risk for men and women is based on the instrument developed by Allsen (1993) and is used by Catapang (2000) for its validity and reliability.

Two separate measurements were done to accurately measure respondent's blood pressure. The first measurement was done using the traditional blood pressure measurement that requires both a blood pressure cuff (sphygmomanometer) and a stethoscope for determining diastolic and systolic blood pressure. The second was done using a self-inflating cuff that automatically inflates and determines diastolic and systolic pressures.

Various statistical treatments were used in interpreting the results of the study. The use of descriptive statistics such as the frequency and percentage were used in determining demographic distribution and health profile of the respondents, activity, exercise equipment availability, and exercise program in the worksite.

To determine which among the covariates - Blood pressure, blood pressure, pulse rate, BMI, and PBFs exert the greatest influence on respondent's work performance and productivity, multiple regression procedure was employed. This statistical treatment enables one to determine the set of independent variables that can best predict the performance and productivity of the respondents. The stepwise regression was used for the predictor variables to be chosen in order of importance. Moreover, the linear regression equation can show how each of the predictor variables affect the dependent variables - respondent's work performance, and productivity.

The subsequent multiple regression analysis determined the predictor variables of respondent's work performance.

The probability level was set at $P < 0.05$ to reach statistical significance.

RESULTS AND DISCUSSION

Respondents' Age and Sex

The majority of the participants belong to age group 36-55 years, which corresponds to 77% or 52.03% of the sample population. Out of the 77 respondents, 46% or 31.08% are female and 31% or 20.91% are males. On the other hand, 59% or 39.87% of the respondents belong to age group 26-35 years old, where 38% or 25.68% are females and 21 or 14.19 are males. Only 5% or 3.38% belong to age group 25 years old or younger and 7% or 4.73% belong to the age group 56 years and older.

Respondents' Blood Pressure

Most of the respondents, ages 36-55 years old, have normal blood pressures equivalent to 30% or 20.27% while ages ranging from 26 to 35 years got 26% or 17.57%. However, from the same age groups, 16% or 10.81% and 14% or 9.46% fall in the category of pre-hypertension respectively, which has been linked to higher than normal risk of heart attack. Ages 26-35 years got 14% or 9.46%, and ages 36-55 years old tallied 12% or 8.11%, and 56 years and older got 3% or 2.03% were all assessed with exceptionally low blood pressure. This does not pose the same risks to health as high blood pressure but can cause dizziness, fainting, and lack of tolerance to change in body positions.

Respondents' Pulse Rate

About 65 or 43.92, aged 36-55 years old, were assessed with normal pulse rate. Ages 26-35 years old also register normal pulse rates, which correspond to 51% or 34.46%. Less than normal pulse rate got 7% or 4.73% from the age group 36 to 55 years old and 5% or 3.38% from 26 to 35 age group.

Respondent's BMI

About 34% or 22.97% of the respondents, 26-35 years old were evaluated with normal BMI, whereas 14% or 9.46% are overweight. Respondent ages 36-55 years also register a normal BMI, which corresponds to 28% or 18.92%. However, the same group (36-55 years) has been assessed overweight and 15 of them or 10.14% were categorized as obese.

Respondents' PBF

The nomogram as an indicator of PBF is used to reflect the overall fat content of the body. 26% or 24.32% of the respondents, ages 26-35 years, have good fitness level (essential fat). 20% or 13.51%, ages 36-55 years, are in the marginal zone that is above the healthy fitness zone and 14% or 9.46% are either in the good fitness zone (essential fat) or in the under fat or too low PBF zone. Essential fat is necessary for temperature regulation, shock absorption, and the regulation of essential body nutrients. An exceptionally

low body fat percentage is of special concern, particularly when associated with low calorie intake, competitive stress, and poor diet. Amenorrhea may occur, placing a person at risk for bone loss or osteoporosis.

Work Performance and Productivity of the Respondents and his Colleagues

Table 1 shows the average rating of the respondent toward his work performance and his co-workers.

On a scale of 0-10, the respondents gave their colleagues a mean rating of 7.22 indicating a very good work performance. In terms of respondent's own work performance and productivity, he gave himself a very good rating of 7.80 and 7.93 for the past year or two and for the past 7-working days, respectively. To compare his work performance and productivity with his colleagues, he gave himself a very good rating with an average score of 7.95 which is generally higher compared to the other 3 performance and productivity indicators.

In general, the respondents still believe that the human resources of PSU perform their job with competence and proficiency as indicated in the work performance and productivity ratings.

Respondent's Job Satisfaction

In general, the respondents have a positive perception toward their job. They are happy and contented with their present employment. The overall mean score of 2.105 suggests that the respondents are satisfied with their job. Statements 1, 5, and 6 have the highest computed mean scores of 2.10, 2.12, and 2.11, respectively. It only implies that at the end of each day, their work gives them such enjoyment and fulfillment. In addition, they responded that their job was interesting. Most of the days, they feel excited and enthusiastic in coming to their workstations.

On the other hand, they have negative responses on statements 2 and 4. They do not believe that their job causes boredom. Furthermore, they need not have to force themselves to report to their respective offices to work. It only implies that they have a remarkable positive attitude toward their job.

Respondent's Job Satisfaction in Relation to Their Health Status

Data in Table 3 show the summary of the results of the tests.

Job satisfaction of employees was greatly influenced by his pulse rate. A percentage of 90.8% is explained by the respondent's average number of pulse rate, and therefore, exerts the greatest influence on one's satisfaction. A fit individual, therefore, is satisfied with his work each time his heart beats as he uses oxygen to produce energy using aerobic metabolism. During work, the demand for energy

Table 1: Respondents' work performance and productivity

Statements	Mean	Description
My rating toward the performance of my co-worker	7.22	Very good
My rating toward my performance over the past year or two	7.80	Very good
My work performance rating for the past 7 days	7.93	Very good
My overall work performance rating compared to the overall work performance of my co-worker for the past 7 days	7.95	Very good

Excellent: 8.01-10.00, Very good: 6.01-8.00, Good: 4.01-6.00, Fair: 2.01-4.00, Poor: 0.00-2.00

Table 2: Respondents' job satisfaction

Statements	Mean	Description
My job is usually interesting enough to keep me from getting bored	2.10	Agree
I am often bored with my job	3.49	Disagree
I feel fairly well satisfied with my present job	2.24	Agree
Most of the time I have to force myself to go to work	3.56	Disagree
I feel happier in my job than most other people	2.12	Agree
Most days, I am enthusiastic about my work	2.11	Agree
Each day seems like it will never end in my work	2.75	Uncertain
Mean	2.105	Agree

Strongly agree: 1.00-1.79, Agree: 1.80-2.59, Uncertain: 2.60-3.39, Disagree: 3.40-4.19, Strongly disagree: 4.20-5.00

increases, so the body increases heart rate to help distribute more oxygen to the body (Corbin et al., 2009). The fewer the heart pumps blood during work in providing the same amount of blood flow to the body, the more relax the employees in their work, the better are their job satisfaction.

The second predictor of respondent's job satisfaction is his PBF based on the nomogram. Based on the adjusted R^2 , 92.1% of the variability is explained by the combined effect of pulse rate and nomogram. This means that a certain minimal amount of fat is needed to allow the body to function. This exact amount (level of essential fat) of fat is considered essential to normal body functioning such as temperature regulation, regulation of body nutrients including vitamins A, D, E, and K, shock absorption (Corbin et al., 2009), and blood circulation brought about by heart's

pumping mechanism. Therefore, the level of essential fat is necessary to maintain healthy and good functioning heart. It is noted that other independent variables - Blood pressure and BMI - are not included in the regression table. It only implies that these independent variables do not significantly relate to one's job satisfaction. The regression coefficients were also tested and found to be significant.

The equation suggests that employee's job satisfaction depends on pulse rate and nomogram. On the average, job satisfaction increases by 0.804 point for every one unit change in the average number of pulse rate and 0.463 point for every one unit change in the average nomogram result for PBF. It can be concluded, therefore, that respondents' pulse rate and PBFs are significantly related to their perceived job satisfaction. The normal or average their pulse rate are, and the better their PBF as indicated in the nomogram, the more satisfied the employees will be. Moreover, if the pulse rate and PBF are below the normal range, employees' perception of job satisfaction will also be affected as it will go beyond average. This may result to boredom, dissatisfaction, and discomfort toward his job. Furthermore, his work attitude will be greatly affected. The predictor of work performance and productivity. Among the health indicators - blood pressure, pulse rate, BMI, and PBF - the only predictor of employee's work performance and productivity is his pulse rate. This variable accounts for 4.4% of the variance in their work performance and productivity, and

hence, exerts the greatest influence on the dependent variable. The other 95.4% of the total variance can be attributed to other factors not considered in the study.

As shown in Table 5, the prediction equation or linear regression coefficients for the model were computed to quantify the relationship between ones' work performance and productivity and his health. The regression coefficients were also tested and found to be significant at 0.05 level of significance. This equation is interpreted to mean that individual's work performance and productivity, on the average, increases by 0.606 point for every one unit change in the average number of pulse rate. On the other hand, the standardized coefficients indicate the relative importance or effect of the pulse rate to the dependent variable. Smaller standardized coefficient indicates minimal effect while bigger value reflects greater effect. This means that that the only factor that can significantly predict employee's performance and productivity is his pulse rate.

CONCLUSION

Heart rate or pulse rate and nomogram can predict employees' job satisfaction. Heart rate or pulse rate is one indicator of cardiovascular fitness. This means that employees with higher levels of cardiovascular endurance have greater cardiovascular efficiency, tend to feel less tired, concentrate

Table 3: Stepwise regression analysis with respondent's job satisfaction as dependent variable

Step	Variable in the equation	R	R ²	Adjusted R ²	Adjusted R ² change	F-change	P level
1	6	0.954	0.909	0.908	0.909	961.970	0.000
2	Pulse rate, nomogram	0.960	0.923	0.921	0.013	16.269	0.000

Table 4: Linear regression equation with respondent's job satisfaction as dependent variable

Model	Unstandardized coefficients		Standardized coefficients	T value	Significance level
	B	Standard error	Beta		
Constant	4.019	5.252		8.381	0.000*
Pulse rate	1.285	0.041	0.954	31.016	0.000*
Constant	3.446				
Pulse rate, nomogram	0.804	0.125	0.597	6.430	0.000*
	0.463	0.115	0.375	4.033	0.000*

*Significant at 0.05 level. The estimate of the linear regression equation is: Y (job satisfaction) = $3.446 + 0.804X_1 + 0.463X_2$, Where, X_1 : Average number of pulse rate, X_2 : Average nomogram for relative percent body fat

Table 5: Linear regression equation with respondent's work performance and productivity as dependent variable

Model	Unstandardized coefficients		Standardized coefficients	T value	Significance level
	B	Standard error	Beta		
(Constant)	6.462	0.520		12.43	0.000*
Pulse rate	0.606	0.260	0.233	2.332	0.022*

*Significant at 0.05 level

better on their jobs, and may feel more satisfied in their quality of work (Wattles, 2003). The nomogram determines the RPBF in men and women. A healthy PBF range is associated with good metabolic fitness, good health and fitness, good decision-making, and good job satisfaction. On the other hand, the only predictor of work performance and productivity is the heart rate or pulse rate. Explanations for this finding may include a reduction in physical fatigue due to an increase of work capacity (aerobic), a reduction of minor illness, and relief from boredom and anxiety (Wattles, 2003).

Recommendations

Based on the findings, the researchers recommend the following:

- That the PSU will create a program to increase physical activity in the workplace, which may include regular physical activity for employees. The program can range from simple indoor/outdoor exercise routines, a workout facility, athletic teams, and sponsored physical activity-related competitions at the workplace. That the university should create, organize, and sponsor physical activity-related competitions at the workplace, this could be spearheaded by the Association of PSU;
- Administrative Personnel (APSUAP), and the Faculty and Staff Union;
- That the APSUAP and the Faculty and Staff Union must include in their annual budget an appropriate funding for the conduct of year-round sports competition involving their members;
- That physical fitness measurement such as waist circumference, body fat percentage, and heart rate or pulse rate monitoring should be included in the university's comprehensive employee health screening; and
- That the university through the Vice President for administration will incorporate physical activity in the workplace as part of the organizational routine to reduce sick leaves and absenteeism which may affect productivity, performance, and job satisfaction among employees.

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Study of Sports Injuries in Physical Education and Sports

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INTRODUCTION

Every day, millions of people (of all ages) in the world participate in games and sports activities, from soccer fields to softball diamonds and Kabaddi courts. It is called playing, but sports activities are more than play. Participation in sports improves physical fitness, coordination, and self-discipline and gives children/individuals valuable opportunities to learn teamwork. Games and sports can also result in injuries some minor, some serious, and still others resulting in lifelong medical problems. Young sportspersons/athletes of the same age can differ greatly in size and physical maturity. Some youngsters may be physical less mature than their peers and try to perform at levels for which they are not ready. Thus, coaches, physical educators, and parents should try to group youngsters according to skill level and size not chronological age, particularly during contact sports. If this is not practical, they should modify the sport/game to accommodate the needs of children with varying skill levels.

Types of Sports Injuries

Injuries among sportspersons/athletes may be classified into two basic categories:

- Acute injuries
- Overuse injuries.

Both types include injuries to the soft tissues (muscles and ligaments) and bones.

Acute injuries

Acute injuries are caused by a sudden trauma. Common acute injuries among young sportspersons/athletes include sprains (a

partial or complete tear of a ligament), strains (a partial or complete of a muscle or tendon), contusions (bruises), and fractures.

Overuse injuries

Not all injuries are caused by a sudden twist fall or collision. A series of small injuries to immature bodies can cause minor fractures, minimal muscle tears, or progressive bone deformities, known as overuse injuries. As an example, "Little League Elbow" is the term used to describe a group of common overuse injuries in young throwers involved in many sports. Other common overuse injuries occur in the heels and knees with tears in the tissue where tendons attach to the heel bone.

Contact sports have inherent dangers that put young athletes trainees at special risk for severe injuries. Even with rigorous training and proper safety equipment, youngsters are at risk for severe injuries to the neck, spinal cord, and growth plates. However, obeying the rules of the game and using proper equipment can decrease these risks.

Common Sports Injuries

Some of the common sports injuries are sprain, strain, fracture, dislocation, abrasion, and contusion.

Sprain

A sprain is a stretch and/or tears of a ligament the fibrous band of connective tissue that joins the end of one bone with another. Ligaments stabilize and support the body's joints. For example, ligaments in the knee connect the upper leg with the lower leg, enabling people to walk and run.

Strain

A strain is a twist, pull and/or tear of a muscle and/or tendon. Tendons are tissue that attaches muscles to bone.

Causes of Sprains and Strains

A sprain is caused by direct or indirect trauma (a fall, blow to the body, etc.) that knocks a joint out of position, and overstretches, and severe cases, ruptures the supporting ligaments. Typically, this injury occurs when individual lands on an outstretched arm slides into a base jumps up and lands on the side of the foot or runs on an uneven surface.

What Activities Make Sportspersons/Athletes Most Susceptible to Sprains and Strains

All sports and exercises, even walking, carry a risk of sprains. The anatomic areas most at risk for a sprain depend on the specific activities involved. For example, volleyball, basketball, soccer, and other jumping sports share a risk for foot leg and ankle sprains soccer.

Types of Fractures

There are many kinds of fractures. Common types include simple, compound, multiple, comminute, greenstick, spiral, stress, complicated and fractures.

Simple fracture - In a simple fracture, a bone breaks but the skin over it does not.

Compound fracture - In a compound fracture, both the bone and skin break, and there is danger of infection.

Multiple fractures - Multiple fractures means that there is more than one fracture in a bone.

Comminuted fracture - Comminuted fracture means that the bone has splintered or shattered, usually owing to a crushing injury.

Spiral fracture - A spiral fracture results when a bone is broken by a twisting force.

Greenstick fracture - In a greenstick fracture, the break occurs only part way through the bone.

Impacted fracture - When the broken ends of both the bones driven into one another.

Communicated fracture - When the bone is broken into several pieces.

Stress fracture - A stress fracture is an overuse injury. It occurs when muscles become fatigued and are unable to absorb added shock. Eventually, fatigued muscle transfers the overload of stress to bone causing a tiny crack called a stress fracture.

Doctors can detect a fracture in several ways usually; there is pain, soreness, or tenderness in a fracture area. Swelling and discoloration also occur. Sometimes, there is a movement of the bone under the skin and obvious deformity. Crepitus often signals a broken bone. Crepitus is a harsh grating sound caused when the broken ends of the bone rub together. In some cases, only an X-ray reveals a fracture. Fractures require medical treatment. The injured part of the body should be immobilized until skilled help is available.

Causes of Stress Fracture

Stress fractures often are result of increasing the amount or intensity of an activity too rapidly. They also can be caused by the impact of an unfamiliar (a tennis player who has switched surfaces from a soft clay court to a hard court), improper (runner using worn or less flexible shoes), and increased physical stress (a basketball player who had a substantial increase in playing time).

Basic Steps to Reduce Causes of Stress Fracture

Stress fractures often are result of increasing the amount or intensity of an activity too rapidly. They also can be caused by the impact of an unfamiliar (a tennis player who has switched surfaces from a soft clay court to a hard court), improper (runner using worn or less flexible shoes), and increased physical stress (a basketball player who had a substantial increase in playing time).

Basic Steps to Reduce the Risk of Sports Injuries

Sportspersons, athletes, players, students, trainees, and individuals can reduce their risk of injury by following the basic steps, which are given below.

Overall conditioning is essential and it can help sportspersons/athletes to avoid injury and injury by following rehabilitation and shortens the “down time” of sportspersons/athletes.

Every student/sportsperson/athlete should receive a pre-participation physical examination, including a general medical examination and an orthopedic examination.

Athletes/sportspersons should work with coaches and sports/athletic trainers/experts around the year to ensure they maintain their condition with appropriate and nutrition.

Sportspersons/athletes should focus on developing muscular strength and endurance, cardiovascular fitness, and flexibility.

Good nutrition is a must. Incorporate the basic food group that is grains, fruits and vegetables, dairy, and meat/poultry/fish. Athletes/sportspersons diets should also be high in complex carbohydrates.

Sportspersons/athletes practicing or playing in warmer climates should become acclimatized to high levels of

activity in hot weather. Practice should be held early in the morning or late in the afternoon.

Limit workouts and practices to maximum 2 h.

The night before an event, sportspersons/athletes should hydrate with electrolyte fluid to reduce the risk of dehydration.

Fluid breaks should be offered at least every 45 min, and sportspersons/athletes should be entitled to unrestricted amounts of fluids to help prevent dehydration and other forms of heat-related illness. All athletes/sportspersons should use appropriate equipment that fits properly in practices as well as competitions.

Ice should be available on the sidelines of every game/match and practice to apply to appropriate injuries. Every institute with a sports/athletic program should have a written

emergency plan that is reviewed regularly and addresses every level of medical care.

Every institute should be encouraged to develop an injury protection manual that documents how injuries will be handled.

The physical education/sports department should be encouraged to have a medical card for every sportsperson/athlete in the institute/college/department/university.

Physical education/coaches should be certified in first aid.

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Codification and Explanation of Spectator Loyalty Model in Sports Industry (A Case Study: Volleyball Super League of Iran)

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ABSTRACT

Sport clubs and leagues are dependent on loyal spectators to generate wealth and maintain organizational life; since a sport club lacking a considerable support base would not be attractive to media and supporters, and generally, will face problems such as lack of sufficient utilization of economic, social, and cultural interests, which are results of spectators' attendance. Considering that volleyball is a popular Olympic sport field with a special place among Iranian sport supporters and also considering the professionalization of this sport field in Iran, the researchers deemed necessary to take a step toward attracting even more and maintaining country's independent funds for sport to achieve increased development and high levels of growth for this sport. As a result, this research was conducted to codify and explain sports spectator loyalty model in the form of case study of Iran's male volleyball super league. This was a descriptive and survey research and was conducted as a field study. Population of the research consisted of all spectators of Iran's male volleyball super league who were over 15, which resulted into 226 persons as research sample. Research tool was standard questionnaires which were distributed among samples after their validity and stability were approved. To analyze research data and provide a structural equation model SPSS 23 and AMOS 23 software were used. Results of Kruskal–Wallis test showed that there is no significant difference between viewpoints of different groups in each variable (namely, level of education, income, and occupation) in terms of loyalty ($P > 0.05$); however, there is a statistically significant difference between viewpoints of spectators with different attendance background in terms of loyalty ($P < 0.05$). Results of structural equations model demonstrated that quality of event and relationship marketing are influential on quality of relationship with, respectively, 0.46 and 0.55 multiplier effects. At the same time, quality of the relationship was also influential on spectator loyalty (0.43). Among pillars of growth and development of the sports are support and increase of spectator attendance. Hence, volleyball federation and its professional clubs need accurate planning and effort to increase quality of executed leagues as well as performance of relationship marketing tactics to improve the quality of relationship with spectators, so they can maintain and increase spectator loyalty to the highest possible point.

Keywords: Relationship marketing, Quality of relationship, Quality of event, Volleyball, Spectators loyalty

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INTRODUCTION

Sports organizations, such as industrial ones, need their customers for profitability and survival. Therefore, it is unimaginable to consider sports businesses without spectator and supporter because sports businesses (professional sports organizations in specific) require spectators and supporters who are willing to spend their time, feelings, and money on their favorite sports team, to sell products, buy sports media, watch matches, etc., Wakefield and Sloan (1995) define being a fan as “high favoritism and support of a specific sports club or field which has formed based on spectator’s interest in them over a period of time.” Some researchers consider increase in number and spectator loyalty of sport leagues and events to be a key variable in income generation and financial survival of professional sports; other studies consider this variable to be uniqueness and difference from other competitors (Hansen and Gauthier, 1992; Saatchian et al., 2012; Fallahi et al., 2008). Taking into consideration reviewed studies on influential factors on customers and spectators loyalty, influence of variables such as event quality (service quality), relationship marketing, and relationship quality on spectators loyalty has been analyzed in this study.

Service quality is defined as the extent to which needs and expectations of customers are satisfied through services. Hence, service quality can be defined as the discrepancy between customers’ expectations of services and received services (Khatibzadeh et al., 2014). Gronroos (1994), in a comprehensive definition, considers relationship marketing as the process of identification, establishment, maintenance, growth and if necessary ending relationships with customers and shareholders in a profitable manner which makes goal achievement for all involved parties and organizations possible. Furthermore, relationship quality means an overall evaluation of relationship’s strength to the extent it satisfies customers’ needs, expectations, and requirements (Wong and Shoal, 2002). Satisfaction, trust building, and commitment are dimensions of relationship quality (Shamout, 2007).

Izadi (2012) in research among spectators of Iran’s football super league demonstrated that consequences of relationship marketing utilization in Iran’s football super league includes improvement of consumer behavior in fans such as quantity of consumption, oral propaganda, media pursuit, and reappearance in future matches of football teams. Paton (1996) found that quality and quantity of facilities are not highly influential on attraction and loyalty of customers. Henning-Thurau et al. (2002) have studied influence of relationship marketing on satisfaction and commitment. Results of this research showed relationship benefits have a positive and significant effect on relationship quality. Furthermore, Palmatier et al. (2007) confirmed the influence of financial and social interests as well as

structural links in relationship marketing on the quality of customers’ relationship with the salesperson. Ko et al. (2011) analyzed the influence of event quality variable among sport spectators and focused on dimensions such as players’ skilled performance, competition time, information dissemination, entertainment, benefits, interactions of executive staff of matches, spectators’ interactions, socialization, perceived value, physical environment, installation, and signs’ design.

Some of the experts of volleyball in Iran believe that volleyball super league is faced with a new dilemma—spectators loss and the number of spectators in male volleyball matches has significantly decreased; which obviously will not be in favor of Iran’s national volleyball teams and leagues. Sports industry in Iran with its comprehensive range requires usage of new marketing principles through which it can acquire spectators’ loyalty in sports which is itself result of long term usage of sports products and services. It should be kept in mind that spectators bring competitive advantage for sports leagues and federations and an effort toward increasing their attendance, and its continuation will lead to valuable consequences for country’s sport. For these reasons, the general objective of this research was to codify and explain spectator loyalty model in sports industry (case study: Volleyball super league of Iran).

RESEARCH METHODOLOGY

This was a descriptive and survey research, which was conducted as a field study. The population of the research consisted of all the spectators, who were over 15, of the 28th male volleyball super league of Iran in the year 2014. Statistical sample of the research included 226 spectators attending in cities of Tehran, Mashhad, and Tabriz. Measurement tools for dimensions such as event quality (Ko et al., 2011), relationship marketing (Lin et al., 2003; Ndubisi, 2007), relationship quality (Wang et al., 2006), and sport spectators’ loyalty (Mahoney et al., 2000) were standard questionnaires, which were designed and made according to Likert 5 values scale (from not at all to very much). After translating the questionnaires to Persian, they were given to academic professors as well as experts in volleyball (total of 8 persons) to determine their face and content validity. Stability of questionnaire’s variables using Cronbach Alpha coefficient was reported to be at an acceptable level (event quality = 0.89, relationship marketing = 0.92, relationship quality = 0.79, and loyalty = 0.76). Finally, to analyze research data inferential statistics (Kruskal–Wallis test) using SPSS 23 software was utilized; and also to provide structural equation model AMOS 23 software was used.

Research Findings

Table 1 determination of the difference in loyalty among viewpoints of different groups in educational level, income, occupation, and attendance background.

Table 2 provides results of structural equation model of the research; influences among variables of research have been simultaneously analyzed in this model.

According to data in Table 2, presented index values for the related model, the index of ratio of Chi-square test is at degree of freedom of <5, the goodness of fit index, adjusted goodness of fit index, normed fit index, incremental fit index,

and comparative fit index are almost more than 0.9, and finally the RMSEA is <0.08; all of which confirm validity and reliability of the model in this research.

DISCUSSION AND CONCLUSION

Results of the structural equations model building as presented in Figure 1 it showed that event quality as an independent variable is directly influential (0.46) on relationship quality. Staff interactions, design of facilities and competition venues, entertainment, signs, time planning and skill performance, in vantage point of spectators, respectively, had the most influence on the final model of research. Based on this, recommendations will be submitted to volleyball federation of Iran; among which knowledge management, conducting training and briefing courses to enhance preparedness and update employee information as well as executive staff's manner of interaction with spectators, appropriate selection of stadiums and competition arenas based on international standards, creativity and innovation in planning and execution of entertainment programs, playing music and video during players' time out to maintain and boost positive stress at

Table 1: Determination of difference in loyalty among viewpoints of different groups in educational level, income, occupation, and attendance background

Variables	Chi-square	df	Asymptotic significance
Educational level	0.61	4	0.962
Monthly income	1.906	2	0.386
Occupation	3.974	4	0.41
Attendance Background (year)	11.901	3	0.008*

*P<0.05

Table 2: Results of outputs of structural equation model of the research

			Estimate	SE	CR	P	Standardized regression weights
RQ	←	RM	0.424	0.100	40.242	<0.001	0.636
RQ	←	EQ	0.368	0.101	30.629	<0.001	0.471
SL	←	RQ	0.526	0.207	20.538	<0.001	0.308
Conflict management	←	RM	1.000			<0.001	0.662
Structural bond	←	RM	1.096	0.142	7.701		0.866
Social bond	←	RM	0.979	0.141	6.967	<0.001	0.681
Signage	←	EQ	1.000			<0.001	0.581
Operating time	←	EQ	0.842	0.167	5.038	<0.001	0.530
Design	←	EQ	1.381	0.207	6.686	<0.001	0.796
Employee interaction	←	EQ	1.397	0.209	6.687	<0.001	0.796
Entertainment	←	EQ	1.414	0.238	5.948	<0.001	0.639
Skill performance	←	EQ	0.696	0.160	4.345	<0.001	0.422
Commitment	←	RQ	1.000			<0.001	0.464
Satisfaction	←	RQ	1.284	0.218	5.877	<0.001	0.638
Trust	←	RQ	1.534	0.305	5.022	<0.001	0.857
SL 1	←	SL	1.000			<0.001	0.560
SL 2	←	SL	1.240	0.219	5.662	<0.001	0.719
SL 3	←	SL	1.357	0.235	5.766	<0.001	0.760
SL 4	←	SL	1.213	0.221	5.480	<0.001	0.672
RMSEA	CFI	IFI	NFI	AGFI	GFI	CMIN/DF	Model fit
0.066	0/94	0/94	0/90	0.89	0.92	2.231	

SE: Standard error, GFI: Goodness of fit index, AGFI: Adjusted goodness of fit index, NFI: Normed fit index, IFI: Incremental fit index, CFI: Comparative fit index

the sport venue, and last but not least promotion of players' skilled performance level, can be pointed out. Taking into consideration the fact that spectator attendance in league's matches is under the direct influence of winning matches and their quality, creating appropriate, and sufficient context in this regard is of utmost importance.

In the current research, the influence of another independent variable, namely, relationship marketing and on relationship quality was analyzed. Based on research findings, the variance of relationship marketing variable has the ability to explain 30% (0.55^2) of variance of quality of relationship with spectator variable at Iran's male volleyball super league (Figure 1).

Relationship marketing component in this research was composed of structural bonds, social interests, and conflict management dimensions which are, respectively, elements of the said component. To mention recommendations based on results of research in this regard, making role of official website of volleyball federation and other related official websites more effective in information dissemination and awareness of audience, creation of official volleyball's fans website for spectators to become a member and enjoy special benefits and services, issuance of fans' membership cards, enhanced information dissemination and relationship building through SMS, e-mail, and new cyber social networks,

periodical reception of spectators' recommendations and viewpoints on services and conduction of matches to identify needs and requirements and improve perceived values of spectators, conducting lotteries and giveaways for spectators, design and execution of special services for loyal spectators, improvement of indirect welfare services such as restaurant, praying room, commute to competition arenas that are hard to travel to, providence of booklets and brochures containing tables about teams' groupings and timeframes for league's matches, enhancement of preparedness of security forces in charge in case of possible issues, can be pointed out.

Results of structural equation model of the research also indicated that influence of relationship quality on spectator loyalty is significant with a multiplier effect of 0.43. Relationship quality with respect to effectiveness is composed of trust, satisfaction, and commitment. Considering the load factors of different dimensions of relationship quality reinforcement of effective factors on trust and a strong and positive attitude on federation, national teams and professional volleyball clubs' correct and growing performance in Iran is one of the most vital composing dimensions of relationship quality with spectators. At the same time acquiring overall satisfaction of spectators with respect to the conduct of volleyball leagues as a result of mental comparison between expenditures and monetary and non-monetary acquirements can result into satisfaction enhancement. Satisfaction

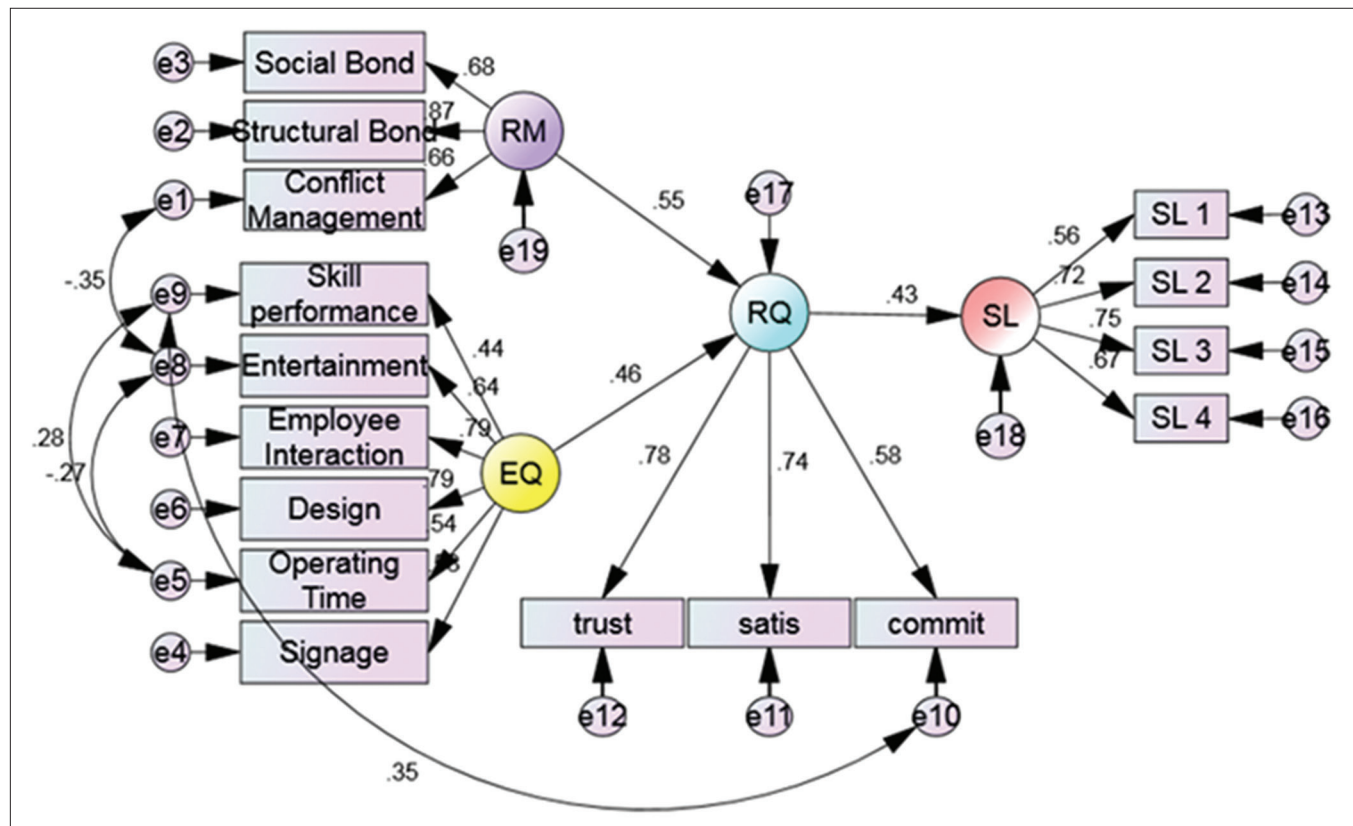


Figure 1: Structural equation model of spectators' loyalty of male volleyball super league in Iran

of quality of event execution including players' skilled performance, staff interactions, physical structure and design of the venue, value and respect induction to spectators and utilization of appropriate, popular and up to date technologies can bring about spectator loyalty even more.

Based on the discussion and presented results, it can be concluded that event quality as well as relationship marketing through relationship quality have a positive significant influence on spectator loyalty variable. Hence, if country's professional volleyball leagues and federation would have an appropriate perception of influential factors on spectator loyalty, they could optimize profiting from positive effects of fan clubs. Loyal spectators as valuable cultural and economical resources of sports clubs and fields have especial influences on sports development; this vital matter would occur while satisfying spectators and gaining their trust (relationship quality with spectators) toward sports leagues and clubs. Hence, it is expected consideration to practical findings of this research could be a productive step toward increased loyalty and attendance of spectators of male volleyball. In summary, it is crucial that managers and others involved in country's volleyball in addition to comprehensive promotion of quality of league and its conduct, through increased awareness and improved attitude as well as the relationship with spectators using new communication tools, promote a level of relationship quality which is followed by spectator loyalty.

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Research on the Effects of Individual Physical Exercise Education Program to Motor Skills of Autistic Students

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ABSTRACT

The aim of this research is to study the effects of individual physical exercise education program on motor skills of the autistic students. There are 12 autistic students participated to the study of this research who are the students of a private education and rehabilitation center. Age interval of these students is 8-14. Necessary permissions for the research are taken from Directorate of Education and students' parents. The research is planned as 2 months, 8 weeks, and 2 days in a week (45-60 min). The education program is prepared, especially according to less competent/weak physical properties of the participant students (motor skills and object control skills). Each week study is visually recorded to monitor the progress. The observation forms and parent interview forms are prepared as they are done before and after the studies research data are analyzed on SPSS 16.00 program, and it is assessed/evaluated/discussed by its frequency, percentage distribution, observation, and interview values. By the research results, there is profound progress observed on students' motor skills and especially on their object control skills. Furthermore, there are positive results/assessments realized by the reports from parents' interviews and participant students' observation reports.

Keywords: Autistic, Individual physical exercise education program, Motor skills

INTRODUCTION

Autism can be defined as a disorder defined by behavioral symptoms related to cortical functions affecting lifelong socialization, language, communication, and many other activities and fields of interest. Behavioral traits ranging from the mildest disabilities to the most serious ones can be observed in the autistic spectrum because of the variance of clinical symptoms severity from individual to individual (Fazlıoğlu and Yurdakul, 2005).

Autism is a very common form of development disorder. This means neurologic disorder and this disorder affects individual's communication ability, language comprehension, plays and his other relations. Presumably, autism, and developmental disorder prevalence is one child in 150 children and is four times more common among boys than girls (Robertson and Long, 2008).

As a result of early surveys, autism prevalence rate has been determined as 5/10,000. Besides, the prevalence rate agreed by Lorna Wing and National Autistic (Children and Adolescent) Society has been determined 15/10,000. This threefold increase in estimated prevalence rate mainly causes from extending the definition criteria of Kanner and new advances of perception of autism. Autism prevalence rate varies between 4 and 5 and 17/10,000 for classical cases. These figures are higher than quotations from literature and previous estimates. Some researchers, on the other hand, have found out 23/10,000 as prevalence rate for autism spectrum disorders. Recent studies show that this rate is likely to be much higher (Fazlıoğlu and Yurdakul, 2005).

Autism is related to some developmental disorders, and intellectual disability is observed in three out of four of these

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people. Very serious mental disorders are observed in half of them, and epileptic attack is seen in 25-35% of them. 6 or 12 symptoms in 3 big areas in one person are diagnosed as autism. These areas are social communication, communication, and behavioral ones (Robertson and Long, 2008).

The specific traits of autism are the lack of emotional and social response or the repetitive behaviors and the lack of spontaneous plays. A non-specific diagnosis is given when children display less similar behaviors.

Social deficits including non-verbal communication abilities and observed in autism are listed as lack of eye contact, facial expressions, gestures and mimics, lack of sharing interest/success or some activities with others (showing, bringing and pointing objects they are interested in), weak central coherence, lack of joint attention, differences in imitation and plays (Quill, 2000).

Autism is defined as the social deficit, communication disorder in speaking before 3 age by IDEA (Individuals With

Chart 1: Specially prepared individual movement training program

Specially prepared individual movement training program			
Weeks	Goal	Movement training	Gains
1 week	Preparation for training and adaptation	Walking, running, collective training	Flat walking, balanced running and being capable of controlling the ball
	Preparation for training and adaptation	Walking, running, collective training	Flat walking, balanced running and being capable of controlling the ball
2 week	Walking and running toward different directions	Flat walking and running, running, walking between barriers and over barrier, controlling ball by hand, dribbling	The ability of balanced walking and running, and ball control by stopping and moving
	Walking and running toward different directions	Flat walking and running, running, walking between barriers and over barrier, controlling ball by hand, dribbling	The ability of balanced walking and running, and ball control by stopping and moving
3 week	Ball control and throwing ball to the target	Target shooting with balls of different sizes	Being able to grasp balls of different sizes
	Ball control and throwing ball to the target	Target shooting with balls of different sizes	Being able to grasp balls of different sizes
4 week	Strength and balance training	Gymnastics exercises, pull up, trampoline, etc.	Being able to use gymnastics materials
	Strength and balance training	Gymnastics exercises, pull up, trampoline, etc.	Being able to use gymnastics materials
5 week	Coordination and ball control	Different circuit training (dribbling, shot, take off)	Being able to do different exercises coordinately
	Coordination and ball control	Different circuit training (dribbling, shot, take off)	Being able to do different exercises coordinately
6 week	Balance, flexibility, and coordination	Gymnastics exercises, pull up, trampoline, circuit training, etc.	Being able to use gymnastics materials
	Balance, flexibility, and coordination	Gymnastics exercises, pull up, trampoline, circuit training, etc.	Being able to use gymnastics materials
7 week	Participation in group training	Training with different handicapped groups (hearing, vision)	Being able to gain group dynamism
	Participation in group training	Training with different handicapped groups (hearing, vision)	Being able to gain group dynamism
8 week	Sports festival for handicapped	Ability and coordination competition for the aim of festival	Being able to gain sports festival and competition feeling
	Sports festival for handicapped	Ability and coordination competition for the aim of festival	Being able to gain sports festival and competition feeling

Disabilities Education Act) in 1990, and this affects education performance of the child (Robertson and Long, 2008).

The characteristics of autism have been listed below. These are:

- Delay in speaking development, stereotyped games, lack of imagination, and insistence on similarity.

Some or all of the characteristics below can be observed:

Chart 2: Parent interview form

Questions	Family opinion	Assessment
Did you observe development in your child's walking?		
Did you observe development in your child's running?		
Did you observe development in your child's jumping?		
Did you observe development in your child's ability of throwing football ball?		
Did you observe development in your child's ability of throwing tennis ball?		
Did you observe positive development in relations with your child's school friends?		
Did you observe positive development in relations with your child's trainers?		
Did you observe positive development in your child's individual behaviors?		
Did you observe positive development in relations with your child's siblings?		
Did you observe difference in attitudes toward his parents?		

- Communication deficits (comprehension and use of language, etc.),
- Difficult relations with objects and people,
- Strange relations with toys and other objects,
- Difficulties in responses to similar or routine changes,
- Repetitive body movements or stereotyped behaviors (Winnick, 2011).

Children with autism display, to a large extent, cognitive abilities, and behaviors. Some of them have no or little language ability. Others are highly intelligent. Unusual sensory responses in noise, light, food, or touching fabrics are common in some of them (Robertson and Long, 2008).

Sensory deficits are one of the most important problems students with autistic disorder experience. These students can experience different problems related to tactual, balance, visual, audial, taste, and smell (Friend, 2006; cited by Diken, 2011).

Inclusive education can be provided to students with autism. This can be attractive and a beneficial experience. The trainer should struggle in the fields of socialization, communication, and perception. You should take it as a first step in your studies. Most autistic children benefit from the use of written language and visual learning. They need a designed play field. These strategies prepared by multi-disciplines can be modified. Another important point is closeness to security and environment in motor skills and special behaviors. This is also important for physical education activities (Rouse, 2010.) For autistic children, sport is an important way to be together with people they do not know before in an unfamiliar environment different from the restricted and known family environment. As a result, they communicate with different people and participate in exercise activities by obeying some rules (Özer, 2010). Development of motor skills and elimination of deficiencies of both normal and autistic children is possible with sports therapies. Systemizing movements are aimed through basic

Chart 3: Researcher observation form

Questions	1 st observation	2 nd observation	Assessment
Student's walking condition			
Student's running condition			
Student's jumping condition			
Student's condition of shooting football ball			
Student's condition of throwing tennis ball			
Student's condition of relationship with his schoolmates			
Student's condition of relationship with his trainers			
Student's condition of individual behaviors			
Student's condition of relationship with his siblings			

imitation skills. Imitation of others has been observed in autistic children as they have little self-confidence (Short, 1995).

MATERIALS AND METHODS

An individual movement training program to be adapted to the students for research was formed. A training schedule was prepared according to the students' weak physical features (gross motor skills and object control abilities). The research was planned 2 months, 8 weeks, and 2 days a week (45-60 min).

Children went through a test in adaptation field one by one before organizing this program. Notes related to motor skills were taken. Individual movement training was prepared in accordance with these notes. Daily programs were prepared by the researcher academic member. During the adaptation phase, the academic member was accompanied by students of volunteer recreation department. Necessary exercise materials were located in the research area, and special adaptation area was formed.

In the research, materials below were used as exercise material:

Portable basketball hoop: Its height can be adjusted 125-175 cm.

Mini trampoline: Its width is 100-125 cm.

Portable movable chinning bar (pull up): Mountable and dismountable, made by a trainer.

Miniature football goal posts: Its length is 100 cm and height is 75 cm.

Barriers at different heights: Their heights vary between 10 cm, 15 cm, 20 cm, 30 cm, and 40 cm.

Hoop: Its width varies between 40 cm, 50 cm, 60 cm, and 75 cm.

Exercise balls in different weights: Their weights vary between 1 kg, 1.5 kg, 2 kg, 2.5 kg, and 3 kg.

Skipping rope: Its length varies between 100 cm, 125 cm, and 150 cm.

Pulling ropes in different lengths: Its length is 3 m-5 m and made by trainer.

Balls in different branches: Consist of football, volleyball, handball, pouf balls, basketball balls, and sponge balls in different sizes.

Training was videotaped, and developments were monitored. Observation forms and parent interview forms were analyzed and explicated before training and at the end of the training phase. Individual movement training program was organized by special trainers, academic members of recreation department, and volunteer students.

Specially prepared individual movement training program in Chart 1 prepared by special trainers, academic members of recreation department, and implementer volunteer students. Special training trainers determined the time of training by taking into account individual developments of children. Academic members of recreation department prepared an exercise program by taking into account motor developments of children. Implementer students carried out first trials of exercises to make sure that training is efficient. Sports festival for handicapped in the 8th week was organized by volunteer academic members and students.

Parent interviews in Chart 2 were carried out by academic members. Pre- and post-interviews were compared by interviewing each parent one by one before the research and at the end of the research. Obtained data were assessed by comparing it.

Role of Pre-game Meal in Enhancing Sports Performance

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ABSTRACT

Pre-game meal is the meal that you take on the day of the event. Pre-game meal can help to supply your body with a significant amount of energy an athlete will need for an event. The pre-game meal will help to stabilize blood sugar levels, hydrate the body, prevent gastrointestinal upset, and avoid hunger during the event. There is no one meal or food that is right for every athlete, but there are choices that are smarter than others. However, it will not supply all the energy needed. Instead, you should eat the right types of food for several days before any event to charge the muscles with plenty of glycogen, the energy source the muscles use during most sporting activities. The pre-game meal needs to be carefully planned by the athlete, the trainee, and the coach because it definitely influences the athlete's performance on the field. The pre-competition meal should be individualized to reflect different transit time, personal food preference, and scheduling of the event to ensure gastric emptying and to avoid discomfort or cramping.

Keywords: Pre-game meal, Gastrointestinal upset, Transit time, Glycogen, Cramping

INTRODUCTION

Some of the most important reasons for eating well before an event are to prevent hypoglycemia (low blood sugar) and its symptoms such as dizziness, nausea, fatigue, muscle weakness, blurred vision, indecisiveness; to settle the stomach by absorbing gastric juices and preventing the distraction of hunger; to top off your muscle glycogen stores for maximal energy, and to give the peace of mind that comes with knowing your body is well fueled (Nancy, 1998). Sportspersons should be eating the right kind of foods for several days before the event to charge up the muscles with glycogen which is the stored form of energy and can be released whenever needed (Cramps, 2004). The pre-competition meal should be individualized to reflect different transit time, personal food preference, and scheduling of the event to ensure gastric emptying and to avoid discomfort or cramping. The volume, caloric content, beverage temperature, osmolarity, sodium content, and pH are powerful determinants of gastric emptying (Jentjens et al., 2003).

Carbohydrates should be the major constituent of the pre-game meal and should be consumed no later than 2½ h before

the competition as they are easily digested and maintain the blood glucose levels (Hoffman et al., 2009). The pre-game meals also can include a moderate portion of such foods like fruits, cooked vegetables, gelatin, desserts, and fish. It has been stated by Paugh (1999) that a pre-game meal should approximately provide 300-800 kcals, 60-70% of kcals as carbohydrates, 10-25% as fat, and 10-15% of kcal from protein. There are certain foods that probably should be avoided on the day of competition. Avoid high protein and fat containing foods such as meat as it is digested slowly (Okano et al., 1998). Furthermore, restrict high sugar foods and sweets as it may cause an insulin overshoot which can produce an adverse reaction and can lead to hypoglycemic stage causing premature fatigue and decreased performance. Even alcoholic and aerated beverages should be avoided. It is better to avoid foods that contain caffeine as it can stimulate the body to increase urine output, which can contribute to dehydration and a full bladder can be uncomfortable (ADA, 2009).

An increasingly popular pre-game meal with both coaches and athletes is a liquid meal. Non-aerated drinks containing hypotonic mixture of sodium chloride, potassium, and

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glucose have been widely recommended (Flynn and Connolly, 1989). It is important for psychological reasons that athlete chooses foods they believe from experience allow them to feel most comfortable during the event, says William and Caleindo (1984). The day of the big game is no time to start experimenting with new meals - always try new things during training first!

TIMING THE MEAL

According to the University of Illinois Extension in Urbana, IL, it is important to allow for enough time for digestion before the event. Eat the meal at least 3 h before the athletic event. Although the timing is important, it is also important to eat the right combination of types of foods to ensure that the stomach is empty, and there is no excess gas or gastrointestinal upset.

GLYCEMIC INDEX

Glycemic index of foods - this is a measure of how much and how fast food will cause your blood sugar to rise. Simple sugars such as candy cause a very rapid increase, but some starchy foods can also cause a very large but slower increase. It is best to have high glycemic index foods during or after exercise (such as glucose, potatoes, bagels, raisins, oatmeal, and sugar) and stick with low to moderate index foods before exercise (pasta without sauce, chocolate milk, power bar, green beans, yogurt, apples, and less ripe bananas), especially if you are eating within 60-90 min of the event. Go easy on high sugar or high glycemic index foods to avoid a “sugar crash” that can occur when your blood sugar rapidly rises and then falls again.

PRE-GAME MEAL GUIDELINES

It is mandatory for an athlete to eat right and stay fit. Specially before participating in some game, it is extremely important for them to check on what they consume. As what they eat affects how they feel and ultimately affects their performance. Although there is not a fixed diet chart to be recommended as a pre-game meal plan because every game and every individual has their own requirements, there are obviously certain things that should be kept in mind while planning a pre-game meal. They include the following:

Rich Carbohydrate Diet

It is very important for an athlete to get a meal that is high in carbohydrate as carbohydrates are the instant source of energy. The meal before the game should thus contain ample amount of carbohydrate as they provide glucose to the bloodstream quickly and thus charge the athletes with an instant source of energy. White bread, vegetables, and cereal without excess fiber can be included in the pre-game diet.

Fruits in the Diet

Many nutrition specialists are of the opinion that fruits should be included in the pre-game diet as they contain natural sugar which is digested easily and proves to be a good source of instant energy. However, it should always keep in mind that the fruits included in the pre-game diet should be light.

Moderate Amount of Proteins in Diet

Protein is an important part of an athlete's diet, so always remember to include rich protein contents in the diet. However, in general, the food rich in protein is also high in fat content. Excess of this diet may cause sluggishness and nausea to the athlete, so remember to serve them in small servings. Chicken breast or a small piece of sirloin steak will be the best protein supplement.

Fluids in Your Diet

Include lots of fluid in your diet as they hydrate your body cells and also get digested easily. They also comparatively provide energy quicker than their solid counterparts. So, include glucose drinks and juices in the pre-game diet. However, consume it moderately as it can also lead to frequent urination.

Strictly Avoid Caffeine, Sweets, and Fat Containing Products

Few things that you must avoid in the pre-game diet are caffeine, sweets, and fatty products. Avoid caffeine because it causes excess urine production that can lead to dehydration. Sweets, on the other hand, should be avoided because they lower the blood sugar level leaving you exhausted and lethargic. Furthermore, avoid deep fried foods, gravies, dry fruits, and dairy products because they can take a toll on the energy and activeness of the athlete.

Do not Experiment with the Meal

Make sure whatever is provided to the athlete as a pre-game meal is already consumed by him on prior occasions. To avoid any last moment mishap like dysentery or food allergy, remember not to experiment with food. Furthermore, go according to the taste of the athlete so that he eats properly.

Consume it on the Right Time

Make sure whatever is eaten as the pre-game diet, is eaten it on the right time. Dieticians say that for an afternoon or evening game, the athlete should be given a full meal about 3-4 h before the game so that the athlete does not feel hungry during the game. However, if due to any reason, the meal has to happen closer to the game, try to include an easily digestible small quantity of food.

Water

Although not a true food, any pre-game meal plan must include adequate hydration with plain water. According to the Colorado State University, water is critical to athletes

because dehydration can cause muscle cramping, decreased performance, and fatigue. During an event, athletes should replace the fluid with chilled liquid during frequent intervals. Chilled fluids are absorbed more readily and help to reduce core temperatures.

FOODS TO AVOID FOR SPORTS PERFORMANCE

Sugary Foods

Sugary foods such as cakes, pastries, pudding, ice creams, sweets, and biscuits should be avoided before the performance of the sports activity because they can cause your blood sugar level to drop, which may, in turn, lead to fatigue.

Caffeine

The effect of caffeine varies from person to person. Some people may feel like having more energy to perform the sports activity, while others may get nervous and find it hard to concentrate after the consumption of drinks containing caffeine. Moreover, the intake of beverages such as tea and coffee can cause dehydration. Side effects, such as nausea and headache, are also associated with the consumption of drinks containing caffeine.

Fried Food

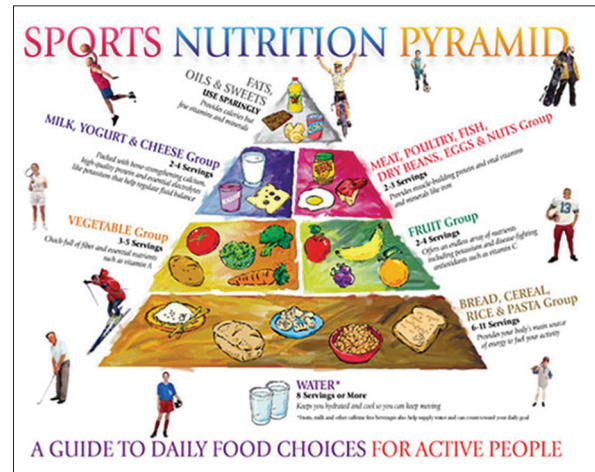
Since fried food is loaded with oil, it takes a long time to digest the fats present in it. You will feel drowsy and will not be able to concentrate on the activity because fried food makes the stomach feel very heavy. Hence, the consumption of fried food should be avoided before the performance of sports.

Fatty Food

Avoid fatty food such as meat (especially red meat); the meat products such as sausages, burgers, and pate; foodstuff such as mayonnaise, creamy sauces, and salad cream should also be avoided, because they contain fat. Avoid drinking full cream milk before performing the sports.

Fizzy Drinks

Apart from being sugary, fizzy drinks can lead to gastric problems, when consumed before or after indulging yourself in any sports activity. Therefore, it should be a strict no-no for the sports persons.



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Attitude of Physical Education Personnel toward Sports Sponsorship in Dhakshina Kannada and Udupi Districts

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ABSTRACT

The purpose of the study was to know the attitude of physical education personnel toward sports sponsorship in Dhakshina Kannada and Udupi district. Every day, thousands of people participating in sports in one form or others, but participation in sports is very expensive. Which even amid order socio-economic player cannot afford to buy? As a result of this, the highly skillful player of low socio-economic, stature forcefully stands away from sports. The aspect of “cannot afford to buy” will force him to come out of the game and a talent is lost unless he is favored, by some sponsors, organization, or institutions. Sponsorship alone will make him to take to the game to come out “most promising.” Methodology: Subject: 100 physical education personnel (30 female and 70 male) from the Dakshina Kannada and Udupi district were selected randomly for this study, age group between 25 and 50. Tools used: Researcher used questionnaire constructed with help of experts in sports sponsorship. Analysis: Collected data have been converted into percentage for the getting the current response status of physical education personnel. Results: In Dhakshina Kannada and Udupi district physical education, personnel have a positive attitude toward getting sponsorship.

INTRODUCTION

Every Indian aspires to be fit physically, physiologically perfect, psychologically sound, socially acceptable, and ethically appreciative so that the ultimate aim of fit society is achieved. Even today, these outcomes are very much valued particularly at the early level of education. Psychologists emphasized the object needs and functional needs of human beings through activities. They further emphasized sports and games as a means satisfied the needs of the man. Sports is looked upon as a human endeavor toward exploring new dimensions in human life.

Sports is a necessary part of people's life. Both participation and watching games have cultivated by thousands of sports enthusiasts. However, we must have sufficient funds to

develop sports and in particular, to hold competitions. The cost of a medium size meets such as taluk, hobli, or intervarsity amounts to over 3-4 lakhs, which include the cost of boarding and lodging facilities and other organizational works. Of course, the national budget covers a certain proportion of sports expenditure. Yet, the appropriation by the state and local governments cannot meet the needs for the development of sports. The solution is to approach to sponsors.

Every day, thousands of people participate in sports in one form or the other. For most, their involvement will only ever be for recreation and pleasure, but for others competitive sports can take over their lives. The luckier ones will reach the top echelon of their event, making international representation, winning medals in major competitions, and

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grabbing the headlines in their hour of glory. Many of the talented players will be unable to show their ability due to lack of monetary support.

Facilities and equipment cost is more. Therefore, finance or sponsorship plays a key role in making of a successful sports person. To provide financial help and others incentives to the player excel in sports activities, adequate finance is necessary.

Sports depend on maintaining a balance between intrinsic and extrinsic motivation. When the intrinsic satisfaction of being involved co-exists with extrinsic concerns for external reward (e.g., money approval from parents, or approval by coaches) sports occurs. Money today has become the motivator of sports performances. Players and even organizers are primarily attracted toward money rather than play.

In the modern world of sports, not all sports persons are able to afford and undergo training using a hi-tech equipment. Unless, sponsors come forward to help them in kind or cash it's quite difficult for the sportsmen, especially in India to compete with the players at the international level. In a way, sponsorship to the outstanding sportsmen can be a source of motivation.

In India, sports is perceived as an essential component in society. It commands primacy like any other welfare program, demanding attention not merely to keep pace with its own enlarging range and dimension but also focusing on its flair, glamor, and effervescence. This is impossible without generous funding. Therefore, sponsorship is the only remedy. Sponsorship has unquestionably changed the face of sports, whether for better or worse will depend on to a large extent on where you are sitting. No area of activity, least of all sports will progress without sponsorship.

Participation in sports is very expensive. For example, the complete kit of a cricket kit worth Rs 20,000.00, hockey goalkeeper kit Rs. 8,000, and tennis kit and badminton kit worth Rs. 15,000. A bodybuilder needs Rs. 15,000-20,000 per month for maintain their physique.

Organizing a local level tournament, such as taluk level, district level, and intercollegiate, inter university tournament its take minimum Rs. 2-3 lakhs, and big sports competition involve huge expenditure which amount to crores of rupees. Sponsorship has today acquired a new meaning and sophistication. Sponsorship takes significance in the present juncture needs no exaggeration.

Sponsorship is function effectively without sponsors, many teams would not survive, and the surviving team is not able to travel and compete as easily without sponsors, team owners, and officials would be forced to focus on fundraising, which

would take the focus away from building the best team possible. Some sponsors paid money or provided a service for that exposure. Money from sponsors allows these teams the ability to plan their season, pay for travel and equipment.

METHODOLOGY

Subject: 100 physical education personnel (30 female and 70 male) from the Dakshina Kannada and Udupi district were selected randomly for this study, age group between 25 and 50. Tools used: Researcher used questionnaire constructed with help of experts in sports sponsorship. Analysis: Collected data have been converted into percentage for the getting the current response status of physical education personnel.

RESULTS

Figure 1 shows that 60% of physical education personnel have viewed that they are not getting grants. Whereas 40% physical education personnel's viewed, they are received grants for the promotion of sports.

Figure 2 shows that physical education personnel's getting the sponsorship more for high school students compare to P U College students and college students.

Figure 3 shows that 36% of physical education personnel are took sponsorship to organize taluk/district/intercollegiate/inter university sports, whereas 64% physical education personnel's viewed that they are not getting sponsorship for the organization of sports.

Figure 4 shows that physical education personnel took more percent of sponsorship gained to sponsor individual followed by the team, social groups, and local bodies.

Figure 5 shows that physical education personnel took more sponsorship for participate in sports followed by organization of sports and coaching camp.

Figure 6 shows that physical education personnel's maximum percent of sponsorship gained both indigenous and international games and sports.

Figure 7 shows that most of the physical education personnel's viewed there is no agreement between physical education personnel and sponsors while receiving sponsors.

Figure 8 shows that 80% of sponsors are assisted during the organization of coaching camp or sports activities.

CONCLUSION

The sponsorship provides a lot of money, equipment, or any other materials required to conduct sports activity at a

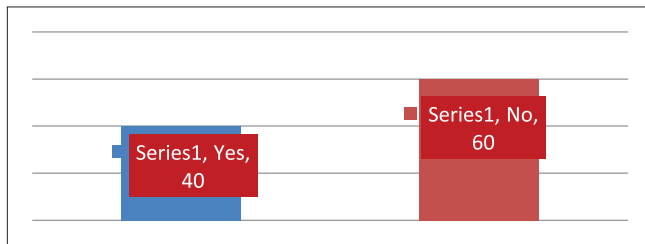


Figure 1: Grants from the central and state government

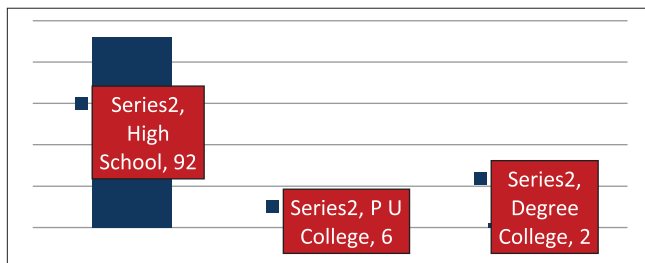


Figure 2: More sponsorship received

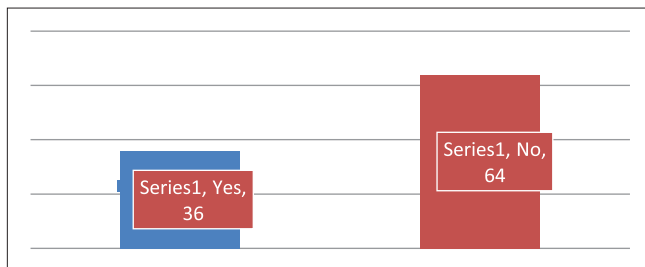


Figure 3: Getting sponsorship to organize taluk/district/intercollegiate/inter university sports

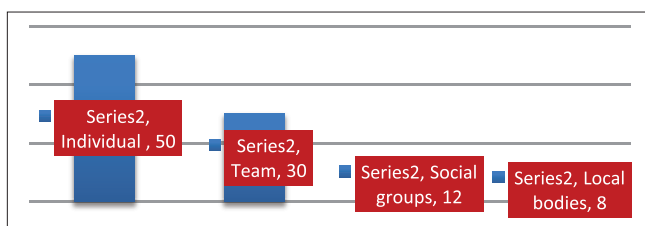


Figure 4: Way of sponsorship

different places and different levels of competition. It also helps to attract more spectator or fans toward sports by providing recreation and enjoyment to the people of society. It also encourages people to participate in sports and even increase goodwill of them in society. Hence, researcher concluded that in modern commercial era sponsorship is attained a vital role in sports promotion. In Dhakshina

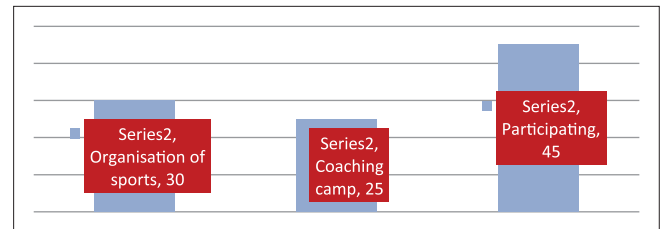


Figure 5: Purpose of sponsorship

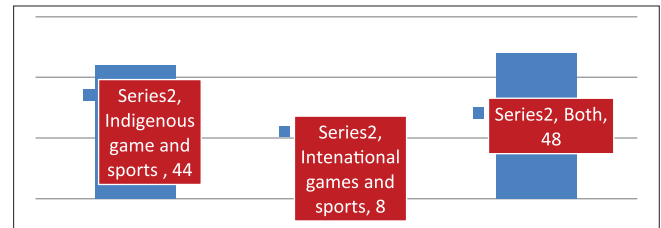


Figure 6: Sponsorship for sports

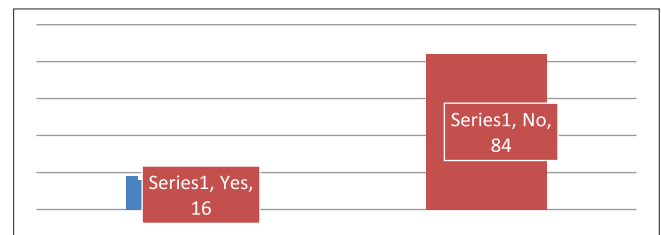


Figure 7: Agreement between sponsors

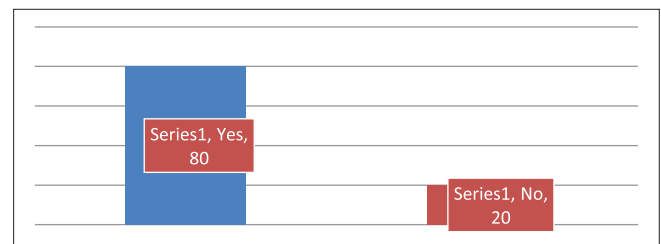


Figure 8: Assistance from sponsors to organize coaching camp or the sports activities

Kannada and Udupi district Physical education, personnel's positive attitude toward getting sponsorship.

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Relation between Body Mass Index and Cardiovascular Endurance of Children

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ABSTRACT

The aim of this study was to analyze the relation between body mass index (BMI) and cardiorespiratory fitness of primary school going boys aged 7-9 years old. This study was conducted on 1069 boys of selected health-related physical fitness variable. The selected variables for the study were cardiovascular endurance (reduced Cooper test) and BMI. Mean was used to find out the significant difference between different groups. It was concluded that lower and higher BMI groups have not better cardiovascular endurance variable. BMI was negatively related with cardiorespiratory fitness.

Keywords: Cardiovascular endurance, Boys, Body mass index

INTRODUCTION

Overweight and obesity have reached epidemic proportions in many Asian countries. These countries also face a grave burden of obesity-related disorders such as diabetes, hypertension, and cardiovascular diseases, which develop at a younger age than in Western populations. These disorders are also manifested in childhood. The major causative factors are related to the lifestyle changes occurring due to rapid socioeconomic transition. Asian populations show several differences in genetic factors when compared with the white population, and they also have lower cut points for environmental risk factors. National program targeting public awareness, education and improved structural facilities to facilitate healthy lifestyle are the keys to alleviate the economic and health care burden of the obesity-related disorders (Ramachandran and Snehalatha, 2010). The cardiovascular disease is the number one cause of death worldwide. The overweight and obese adults had much lower levels of cardiorespiratory fitness as compared to their normal weight counterparts (Hung et al., 2014). Excessive amount of body fat exerts an unfavorable burden on cardiac function and oxygen uptake by working muscles. Low cardiorespiratory fitness in young adults with increased body fat could be a factor for developing cardiovascular comorbidities later in middle age (Laxmi et al., 2014). The overweight/obese youngsters tend

to have cardiovascular endurance than the normal weight group. The overweight/obese and unfit group had a greater risk of hypertension than other groups. However, this risk was significantly lower if obese/overweight children had a higher than average level of cardiovascular fitness (Chen et al., 2006). Normal, underweight, and overweight boys and girls had an increased odds ratio of being categorized with higher cardiorespiratory fitness than obese one for both gender body mass index (BMI) and physical activity are significantly correlated with cardiorespiratory fitness levels (Hsieh et al. 2014). In both genders, there were significant negative correlations between fitness and both BMI (Hussey et al., 2007). The interrelationship of BMI, fitness, and physical activity emphasizes the need for longitudinal studies that would reveal (1) the causality between physical activity and overweight/fitness and overweight and (2) the causal inter relationships between overweight, physical activity, and fitness (Rauner et al., 2013). Changes in BMI due to various factors, such as a low level of physical activity, are often associated with poor physical fitness in children with probable developmental coordination disorder (p DCD). This study examined whether children with p DCD would show poorer performance in terms of physical fitness when compared with their typically developing (TD) peers. About 32 children with p DCD and normal BMI and other 32 children with TD and normal BMI, matched by gender, age,

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and BMI, performed the sit and reach, standing long jump, curl-up, modified pull-up, and 9 min run tests. The children in the p DCD group showed lower explosive power, muscle strength and endurance, and cardiorespiratory fitness than children in the TD group. Overall, children with p DCD had lower levels of physical fitness, even with normal BMI (Hiraga et al., 2014).

Purpose of the Study

The purpose of this study was to find out the cardiovascular endurance in relation to BMI of primary school going boys aged 7-9 years old.

METHODOLOGY

Selection of Subjects

About 1069 primary school going boys from 20 districts of West Bengal in India, were selected aged 7-9 years old. All subjects were arranged in a randomly.

Selection of the Variables and Criterion Measures

Following variables were selected for the purpose of the study:

1. Reduced Cooper test for cardiovascular endurance (in m)
2. BMI (kg/m^2).

Reliability of data, instrument reliability, and subject reliability were ensured by applying test-retest method.

RESULTS

The analysis of results was established the mean of cardiovascular endurance by boys. The mean of cardiovascular endurance of boys is 1013.46 m (BMI group 11-12.9), 1040.72 m (BMI group 13-14.9), 1031.03 m (BMI group 15-16.9), 981.25 m (BMI group 17-18.9), 878.18 m (BMI group 19-20.9), 857.42 m (BMI group 21-22.9), and 852.88 m (BMI group 23-24.9). Number of the subjects, BMI, and mean of cardiovascular endurance are presented in Table 1.

DISCUSSION

The maximum mean of cardiovascular endurance of this study was obtained 1040.72 m in BMI group of 13-14.9 kg/m^2 . The minimum mean of cardiovascular endurance of this study was obtained 852.88 m in BMI group of 23-24.9 kg/m^2 . At the starting point, lower BMI group of 11-12.9 kg/m^2 was showing lower cardiovascular endurance than BMI group of 13-14.9 kg/m^2 . Graphically, BMI group of 13-14.9 kg/m^2 was established a high level of cardiovascular endurance. Afterward gradually decreased in cardiovascular endurance as the BMI ranges increased (Table 1 and Figure 1). The documented data also show that cardiovascular endurance of boys progressively decreases with increasing BMI (Hsieh

Table 1: Number of the subjects, BMI, and mean of cardiovascular endurance

Number of the subjects	BMI (kg/m^2)	Mean of cardiovascular endurance (in m)
95	11-12.9	1013.46
463	13-14.9	1040.72
319	15-16.9	1031.03
116	17-18.9	981.25
33	19-20.9	878.18
26	21-22.9	857.42

BMI: Body mass index

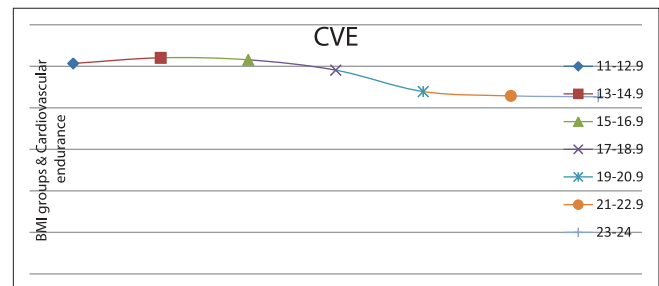


Figure 1: Graphically relation between body mass index and cardiovascular endurance of boys

et al., 2014; Hussey et al., 2007; Laxi et al., 2014). As a result, graphically the relation of cardiorespiratory fitness with BMI is curvilinear (Huang and Malina, 2007) manner which is shown in Figure 1.

CONCLUSION

On the basis of the result, it can be concluded that BMI was negatively related with cardiorespiratory fitness, and graphically the relation of cardiorespiratory fitness with BMI is curvilinear manner also.

ACKNOWLEDGMENTS

I gratefully expressed thank to Abdul Halim Barkati and Sri Rajib Mondal, who recorded the measurements. Thanks are also expressed to Sri Haridas Mahato, Sri Sanu Naskar, Sri Indrajit Pati, and all primary teachers, for rendering assistance to the administration of the tests.

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A Brief Study on Speed and Shooting Accuracy Training Program for Improvement of Layup Shot Performance among Basket Ball Players of Visakhapatnam District in Andhra Pradesh

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ABSTRACT

Basketball is a most spectacular and popular game in the world. This is evident from the number of countries playing this game all over the world. Basketball is an anaerobic game played with high intensity. The players have to perform their best within the duration, the stipulated 40 min the fundamental skills being passing, dribbling, layup shot, and shooting. The main purpose of the present study is to find out the effect of 50 yards dash and medicine ball single arm throw to improve layup shot performance among male basketball players of age group 18-21 years of Visakhapatnam district. 50 yards dash and medicine ball single arm throw training program conducted for experimental group, and control group was involved in the routine game on alternate days, i.e. three sessions per week for 3 weeks to measure layup shot performance of basketball players.

Keywords: Basketball players, 50 yards dash, Layup shot, Shooting, Speed and medicine ball throw

INTRODUCTION

Basketball is one of the world's most popular and widely viewed games. Basketball is played by two teams of five players each on a rectangular court. The purpose of each team is to throw the ball into opponent's basket and to prevent their team from securing the ball or scoring the points. The ball may be passed, tapped, rolled, or dribbled in any direction, subject to restrictions, rules, and regulations. A team scores three points for the shooting team if the player shoots from behind the three-point line, and two points if shot from in front of the line. One point comes by free throw. The team with the most points at the end of the game wins. The ball can be advanced in the court by bouncing it while walking or

running or throwing it to a teammate. It is a violation to lift or drag one's pivot foot without dribbling the ball, to carry it, or to hold the ball with both hands then resume dribbling. The prime object of this game is to throw the ball into opponent's basket and score points.

Shooting, passing, dribbling and rebounding, layup shot, etc., are the important skills in playing Basketball. Teams generally have two playing positions, i.e., offensive and defensive positions. Traditionally, the tallest and strongest members of a team are called a center or forward while slightly shorter and more agile players are called small forward, and the shortest players or those who possess the best ball handling skills are called a point guard or shooting guard.

Table 1: Mean values layup shot test between experimental and control group of basketball players

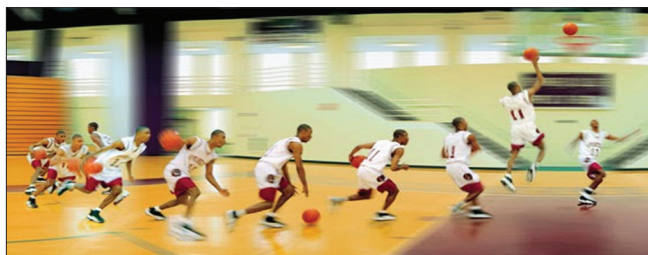
Variables	Group	Pre-test mean	Post-test mean	t	Conclusions
Layup shot	Experimental group	4.53	5.93	5.18	Reject null hypothesis
	Control group	3.33	3.6	1.54	Accept null hypothesis

Dhal (1975) investigated the jump shooting ability in basketball to selected measurable traits. College going basketball players (N = 24) were tested on 11 independent variables and three points accuracy from 10 ft, 21 ft, and total accuracy. Wrist strength and flexibility correlated significantly with 10 ft accuracy; wrist strength, hand size, and hand reaction correlated significantly with 21 ft accuracy. Jump shooting ability from basket 10 to 21 ft can be predicted from the developed regressive equations.

Medicine balls are excellent for learning to throw the weight of the ball; there is a need to properly shift weight from the rear leg to the front. The balls are also a great tool for improving dynamic flexibility. The weight of the medicine ball can help improve the functional range over which force must be resisted and applied. These medicine ball exercises progress from the warm-up and basic exercises to throwing exercises. Incorporating medicine ball exercises into dynamic warm-up is a great way to awaken nervous system. They can be incorporated into a day which has a total body power theme. Throws work best for improvement of shooting in basketball. In addition, these exercises can be used as an additional load for any movements like core work or lunging and stepping activities. A medicine ball is also known as an exercise ball, a med ball, or a fitness ball. It is a weighted ball roughly the diameter of the shoulders approximately 13.7" often used for rehabilitation and strength training. The medicine ball also serves an important role in the field of sports medicine.

Layup Shot

A layup in basketball is a two-point shot attempt made by leaping from below, laying the ball up near the basket, and using one hand to bounce it off the backboard and into the basket. The motion and one-handed reach distinguish it from a jump shot.



Speed

Speed is the performance prerequisite to do motor actions under given conditions such as movement task, external

factors, and individual prerequisites in minimum time. It is one of the physical fitness components, and it will play a key role in getting high performance in layup shot among basketball players. Physical fitness is inevitable for any game or sport so that briefly discussed physical fitness. Physical fitness is a term used to refer the functional capacity of an individual to perform certain kinds of tasks requiring muscular activity. Physical fitness is the ability of the body to adopt and recover from strenuous exercise. It is a relation of one's ability to work and play with vigor and pleasure without undue fatigue and with sufficient energy for unforeseen emergencies. Physical fitness is the ability to last, to gear up, and to preserves under difficult circumstances where an unfit person would give up. It is the opposite of being fatigued from ordinary efforts.

METHODOLOGY

The sample for the present study consists of 30 male basketball players in the age group of Visakhapatnam district. 30 players are divided into 2 groups of each 15, i.e., experimental and control group. 50 yards dash training for speed and medicine ball single arm throw for shooting accuracy are conducted to experimental group on alternate days, i.e., three sessions per week for 3 weeks and routine game to control group. Pre- and post-tests were conducted in layup shot to find out speed and shooting accuracy performance among experimental and control group of players.

The experimental group of layup shot test is 4.53 and control group is 3.33 mean in the pre-test. The mean difference in between two groups is 1.2. The experimental group of layup shot test is 5.93 and control group is 3.6 mean in the post-test. The mean difference in between these two groups is 2.33 in the post-test. The experimental group mean increased from 4.53 to 5.93, i.e., pre-test to post-test. Hence, there is an improvement of 1.4 from pre-test to post-test. The control group mean increased from 3.33 to 3.6, i.e., pre-test to post-test, there is a little increase of 0.27 due to routine gameplay. Experimental group performance improved due to speed training.

RESULTS AND DISCUSSION

This study revealed that due to 50 yards dash training there is a good improvement in the experimental group in layup shot performance in post-test. Little improvement is observed in the controlled group due to general gameplay. The development of speed plays a key role in performing layup shot among basketball players. Speed is a very important factor for

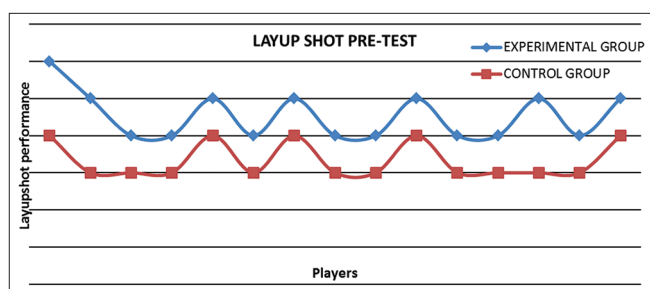


Figure 1: Variation of layup shot performance pre-test among the players

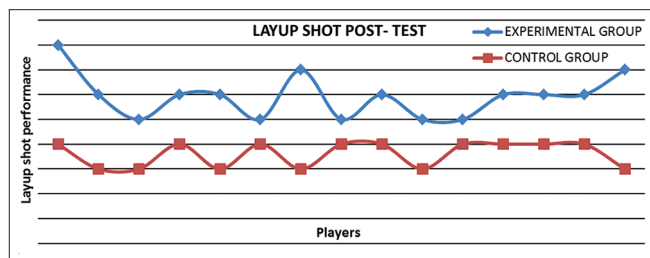


Figure 2: Layup shot performance post-test among the players

Basketball players. The results from the technique implemented confirm that the role of speed training program can enhance layup shot performance among the Basketball players.

CONCLUSIONS

It is concluded that on account of 50 yards dash training program showed improvement in layup shot performance

among experimental group of Basketball players and due to the general gameplay the control group has not improved much.

RECOMMENDATIONS

1. Similar studies can be conducted among female basketball players,
2. Same study can be conducted for other games such as volleyball, handball, and football,
3. Speed is very important factor to apply most of the games and sports,
4. Coaches can encourage this study and implement in several team games and athletics.

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Stadium Management of Participation of the Local Government Administration in Thailand

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ABSTRACT

The purpose of this study is to study the correlation between participation and stadium management of local government administrations. A quantitative method was applied using 7851 people from chiefs of department or directors of educational division in the local government administrations as research population. 579 samples were taken into account of the quantitative method. The statistical correlation was tested by Canonical correlation. The results showed that the correlation on the participation of local government administrations in stadium management was as high level (0.869). Particularly, the participation on monitoring and evaluation of the local government administration correlated and supported the stadium management in managing development plan of the local stadium which leads well providing public services to local people.

Keywords: Local administration, Stadium management, Local stadium

INTRODUCTION

The Ministry of Tourism and Sports by the Department of Physical Education has prepared a construction plan for stadiums in 690 districts and 1114 sub-districts to be taken into 5 fiscal years plan (2012-2016). According to the Procedural Plan for Decentralization of Authority to Local Government Administration, the Sports Authority of Thailand and the Office of Sports and Recreation Development of the Ministry of Tourism and Sports were specified to transfer their responsibilities in managing provincial stadiums to provincial administrative organization including in Bangkok, together with the subordinate stadiums to municipalities, Pattaya City and Sub-district Administrative Organizations (The Department of Physical Education, 2012).

According to abovementioned plan, there were as many as 1804 standard stadiums that were built and transferred to the local government administration in the period of 5-year. Maintenance and administrative costs were high for the local government administrations to be undertaken burden in the long run (The Ministry of Finance, 2011). A lack of specific

procedure to manage a stadium could certainly affect the stadium management of the local government administration. Stadium management of the local government administration was an important aspect which required a prototype in managing the stadium without the help from the central government in the future.

Objectives of the Study

To study the correlation between participation and stadium management of the local government administrations.

LITERATURE REVIEW

The development of literatures and theories in management from similar synthesis of many researches or institutions was applied in stadium management that specified the management into 4 aspects as follows: (1) Stadium development planning is the decision process in operational selection corresponding to existing factors and achieving ultimate target (Deshler et al., 1996) composes with (i) providing public services to people, (ii) specifying local stadium standards, and (iii) providing budget; (2) operational

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structuring management of sports organization is an adaptation of sports development plan toward implementation which designed of stadium administrative structuring to be operational management system, determined scope of responsibilities, provided human resources matching with the prepared plan to expected outcomes (Wongsansri, 1987) consists of (i) design of organizational structure, (ii) provide income from sports activities, and (iii) use of information and communication technology; (3) human resource management is a process that administrators apply in human aspect starting from employing officer in each sector, stadium keeper and commissioning qualified operational officer to enhance their operational knowledge, skills and mental health of working leads to happily live in their society (Werther and Kiath, 1996), including (i) hiring officers, (ii) officer development, (iii) officer developing management, and (iv) quality of life of their officers; (4) stadium operational monitoring standard is a control of operation belong to regulation and criteria (Fayol, 1949; Schermerhorn et al., 2000) referred that the control is a monitoring result from operation and solving essential stadium operational component which consists of (i) supervision of the operation and (ii) control purchasing criteria.

Research Methodology

A quantitative method was applied in this research. The research tool was 5 levels of Likert's scale (Kispredarborisuthi, 2008) to determine content reliability from specialists, The Index of Item Objective Congruence and confidential value. The reliable test was tested with non-actual sample group. Conbach method is the use of the test with confidential value as 0.85 (Cronbach, 1974). Statistical hypothesis analysis was conducted by Canonical correlation.

Research Areas and Quantitative Population

Target area was specifically selected following provincial administrative organizations, sub-district administrative organizations, and municipalities. The research population included chiefs of department or directors of educational division totally 7851 persons. The questionnaires were distributed to 579 research samples (Yamane, 1973) specifying a confidence level of 96%.

Research Tools for Data Collection

Opened-end questionnaires were conducted by researcher with 87 topics.

Data Collection

Data collecting was during the period June 2014 to October 2015.

Hypothesis Testing

To test the correlation between the participation of the local government administrations and the stadium management, the correlation was analyzed to test combined hypothesis which

analyzed the size and the director of the correlation between the independent variables and the dependent variables as established in the hypothesis. This was conducted using Canonical correlation analysis method.

Research Conclusion

Sample group studied were chiefs of department or directors of educational division in local government administrations totally 579 samples. The study showed that proportions based on organization of the sample group were following SAO 56.60%, municipality 34.70%, and PAO 8.70%. Moreover, proportions based on the position of the research population were chiefs of education department 58.00% and directors of educational division 42%. The results of hypothesis testing to study correlation between participation of local government administration and stadium management are the following section.

According to correlation series, there were two linear correlation series because a significant value of 0.000 ($P < 0.001$) has statistically significant difference (Jirakraisiri, 2013) which was taken into consideration of highest overlapping value was the first series while considering about Canonical correlation between participatory independent variables and managing dependent variables that Canonical correlation value is 0.869.

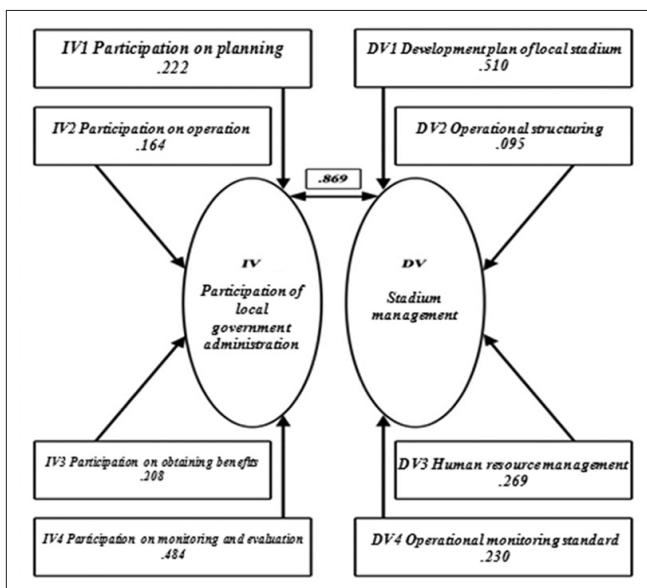
The results of correlation testing using Canonical correlation coefficient found that the participation of the local government administration correlated with the stadium management was as high level ($r = 0.869$) with significant different level as 0.01. Furthermore, particularly on monitoring and evaluation aspect ($r = 0.484$) and development plan for local stadium aspect ($r = 0.510$) were sub-variables affecting stadium management of local government administration (Table 1). However, the variable criteria were selected from Canonical correlation coefficient as higher than 0.30, in the case of lower than 0.30 was as less significant different as illustrated in Figure 1.

DISCUSSION

The key research finding found that the participation of the local government administrations correlated with the stadium management as the high level which confirmed the fact that the participation on outcome monitoring and evaluation which correlated and supported the stadium management. The local stadium development plan included providing public services to people, constructing an up to the standard stadiums and finding budgets to manage the local stadiums by the local government administrations. This was consistent with Kurupan (2005) that the development plan of the Sports Authority of Thailand assigned that stadiums must be constructed, developed and renovated as well as maintained included gymnasiums, sports equipment and other facilities according to an international standard. For finding budgets, it

Table 1: Canonical correlation coefficient of standard scoring and structuring for independent variables of participation of local government administration and dependent variables of stadium management

Variables	Canonical correlation coefficient	
	Standard scoring	Structuring
Independent variables of participation of local government organization		
IV1 Planning	0.222	0.912
IV2 Operation	0.104	0.923
IV3 Obtaining benefits	0.208	0.871
IV4 Monitoring and evaluation	0.484	0.963
Dependent variables of stadium management		
DV1 Development plan for local stadium	0.510	0.943
DV2 Operation structuring	0.095	0.768
DV3 Human resource management	0.269	0.875
DV4 Operational monitoring standard	0.230	0.913

**Figure 1:** Correlation between participation of local government administration and stadium management

was similar to a concept of Kim (1990) that emphasizing of providing facilities in a sports event.

RECOMMENDATION

According to the results from the high correlation of the participation of local government administration in stadium management, local government administration, physical education department, Sports Authority of Thailand and educational institution can adapt this research results into next research and development to arrange learning course for stadium administrative position.

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Assessing Injury Prevalence among the School Male Judokas

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ABSTRACT

The purpose of the study was to assess the common sports injuries among the secondary school level male judokas. A total of thirty (N = 30) interschool level male judokas in different schools from Malappuram district in Kerala were selected as subjects and their age ranged from 12 to 17 years. The subjects had represented the school at least once in interschool level competitions. This study was based on common injuries to the players and their causes, reasons, method of treatment to injuries, other related aspects, and personal profiles. The data were collected through questionnaire followed by personal interviews of the players. The percentage analysis was employed to analyze the incidence of common sports injuries in judo. The findings were drawn based on the results of the study. The majority of injuries occurred to the judokas were on lower extremities, knees, and foot. Subjects repeatedly got injuries at the same part and injuries occurred during both practice and competition sessions. Injuries affected the performance capacities of the players both physically and psychologically. Judo requires a variety of physical attributes and specific playing skills. Participants should be trained to meet the physical, physiological, and psychological requirements to cope with demands of play and reduce the risk of injury. It is recommended that the physical education teachers, the coaches, and the players should be given proper education and training with respect to the need for conditioning programs during practice sessions and the use of correct techniques during competitive judo to avoid injuries.

Keywords: Judokas, Injury incidence, Athletic activities, School level, Treatment

INTRODUCTION

Judo was a martial art created in 1882 characterized by a great number of techniques and philosophical basis and it has been mentioned in several studies as one of the sports presenting a higher amount of injury occurrences. Nevertheless, there are few detailed surveys to allow performing a causal correlation between the technical aspects and the percentage picture of the injuries found in this sportive modality.

Sports are usually governed by a set of rules or customs. Physical events such as scoring goals or crossing a line first often define the result of sports. However, the degree of skill and performance in some sports such as diving and figure skating is judged according to some well-defined criteria. This is in contrast with other judged activities such as beauty

pageants and body building, where skills do not have to be shown, and the criteria are not as well defined.

Adults are less likely to suffer sports injuries than the children, whose vulnerability is heightened by immature reflexes, inability to recognize and evaluate risks and underdeveloped coordination. Each year, about 3.2 million children between the ages of five and 14 are injured while participating in athletic activities and account for 40% of all sports injuries. As many as 20% of children who play sports get hurt and about 25% of their injuries are classified as serious. More than 775,000 boys and girls under the age of 14 are treated in hospital emergency rooms for sports-related injuries.

Injury rates are the highest for athletes who participate in contact sports, but the most serious injuries are associated with individual activities. Between one-half and two-thirds

of childhood sports injuries occur during practice, or in the course of unorganized athletic activity. Judo is contact sports, and contact sports can lead to impact injuries. Researchers support the contention that improving the judo techniques results in less frequent judo injuries. However, judo injuries can occur to the various body parts.

The objective of this study was to assess the common sports injuries among the interschool level male judokas. This study was based on common injuries to the players. Data were collected regarding the causes, reasons, methods of treatment to injuries, and other related aspects and personal profiles.

METHODOLOGY

Participants

A total of thirty (N = 30) interschool level male judokas in different schools from the Malappuram district were selected, with their age ranging from 12 to 17 years. These athletes had participated at the interschool level competitions with a minimum of one such competition to their credit.

Instrument

Questionnaire and interview method was applied for the collection of data. This study was based on common injuries to the players and their causes, reasons, methods of treatment to injuries, other related aspects, and their personal profile.

Data Collection

The data were collected through questionnaire and personal interviews of the Judokas. The data were collected by administering the questionnaire by the investigator himself. To ensure maximum cooperation of the subjects, the scholar had a meeting with the subjects, in their respective schools and judo training centers in the presence of their coaches. The purpose of the study and questionnaire was clearly explained to them to avoid ambiguity among the subjects regarding the effort which they had to put in for the successful completion of the investigation.

RESULTS AND DISCUSSIONS

The descriptive statistics and percentage analysis were employed to analyze the common sports injury prevalence among school judokas (Tables 1-6).

CONCLUSION

Based on the findings of the study, the scholar's own understanding and the available literature, the following conclusions were drawn. The majority of injuries occurred to judokas were at lower extremity, and they were directly related to their hips, knee, and ankle. Subjects repeatedly got injuries at the same part and injuries occurred during both practice and competition sessions. Injuries affected

Table 1: Physical and body composition parameters of the Judokas

Variable	N	Mean±SD	Minimum	Maximum	Range
Age	30	14.50±3.5	12	17	5
Weight	30	55.00±11.9777	35	75	400
Height	30	157.5±4.76	150	165	156
BMI	30	21.05±3.03	17.00	26.00	10

BMI: Body mass index, SD: Standard deviation

Table 2: Injured during practice

Serial number	Injured	Frequency (%)
1	Yes	20 (66.67)
2	No	10 (33.34)

Table 3: Injured during competition

Serial number	Injured	Frequency (%)
1	Yes	16 (53.34)
2	No	14 (46.67)

Table 4: Area of getting injured

Serial number	Extremity	Frequency (%)
1	Upper	12 (40)
2	Lower	18 (60)

Table 5: Injuries in extremity

Serial number	Location	Frequency (%)
1	Head/Neck/Face	4 (13.34)
2	Shoulder	5 (16.67)
3	Elbow	3 (10)
4	Hip/Gluteus	5 (16.67)
5	Knee/Calf	6 (20)
6	Ankle/Foot	7 (23.34)
7	Any other part	0 (0.00)

Table 6: Hospitalized being Injured

Serial number	Hospitalized	Frequency (%)
1	Yes	10 (33.34)
2	No	20 (66.67)

the performance capacity of a player both physically and psychologically. On the basis of the results, the following suggestions are made.

Judo requires a variety of physical fitness components (speed, power, flexibility, strength, and coordination) and specific playing skills. Hence, the participants need to be trained

and prepared to meet at least a minimum set of physical, physiological, and psychological requirements to cope with demands of play and reduce the risk of injury. It is recommended that physical education teachers, coaches, and the players should be given proper practice and training with respect to the need for conditioning programs including proper warming up procedure before practice sessions (Randori) and using correct techniques during competitive judo to avoid injuries.

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Recent Trends and Challenges in Physical Education in Sports and Games

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ABSTRACT

The importance of physical education the aim of this paper is to identify the current trends and challenges in physical education and sports and games based on these current challenges, future trends and challenges would be discussed. There are various factors which are diminishing the interest of students in physical education activities. Although the physical education is being taught as a part of the curriculum in all the schools and college, the lack of adequate time and trained teachers and coaches, good facilities are responsible for little interest in this physical education field. The future challenges to make this field interesting involves an adequate curriculum, sufficient funds allotment for holding various competitions and role of information technology to create awareness about the importance of physical activities and sports and games in our daily practice. All these issues have been discussed in the present study.

Keywords: Physical education, Sports, Games information technology

INTRODUCTION

The importance of physical education has never been emphasized more than it is today. It is widely recognized that physical education and sports are relevant and important in developing an active and healthy lifestyle and the solution to rising obesity rates worldwide. Although in most countries, physical education is part of the school curriculum, lessons are not given, thus leading to a reduced experience of physical activity for children and youth. The practice of a physically active lifestyle in combination with healthy nutrition, however, needs to be started in early childhood. Therefore, ensuring that all children engage in a regular physical activity is crucial, and the schools are the only place where all children can be reached. A quality physical education is the most effective and inclusive means of providing all children, whatever their ability/disability, sex, age, cultural, race/ethnicity, religious or social background, with the skills, attitudes, values, knowledge and understanding for lifelong participation in physical activity and sports and is the only

school subject whose primary focus is on the body, physical activity, physical development and health. This study will identify the current trends, issues and challenges in PE and sports based on which future challenges will be addressed.

CURRENT TRENDS, ISSUES AND CHALLENGES IN COLLEGE PHYSICAL EDUCATION (PE) IN SPORTS AND GAMES

The “reality check” reveals several areas of continuing concern regarding current trends in PE and sports. This area embrace PE not being delivered or delivered without quality, insufficient time allocation, lack of competent qualified and/or inadequately trained teachers, inadequate provision of facilities and equipment and teaching materials, large class sizes. It is noted that the amount of time dedicated to PE has been diminished in the school curriculum throughout the world. Physical educators have failed to ensure that the linkage between their efforts in the classroom and the

health and cognitive development of their students. The responsibility rests directly on the shoulders of physical educators to ensure that the importance of their subject matter is understood and embraced as a part of their schools' overall curriculum. Today, more than ever, the PE curriculum needs to be linked to the overall well-being of children and youth as they matriculate through the curriculum. As has been noted, lessons learned at an early age carry into adult life. Furthermore, the importance of physical activity as a way of creating greater attentiveness in the classroom has not been recognized. The opportunity for schools to provide Brain Breaks, which stimulate students and reenergize their efforts, has largely been ignored in the overall curriculum.

Therefore, it is dire need to generate student's interest in sports and other physical activities by making these studies more interesting and creating awareness about the importance of such activities.

DEVELOPING 21ST CENTURY SKILLS AND COMPONENTS IN PE IN SPORTS AND GAMES

"The aim of PE is to develop physical competence so that all children are able to move efficiently, effectively and safely and understand what they are doing. The outcome, physical literacy, along with numeracy and literacy, is the essential basis for learners to access the whole range of competencies and experiences." Linkages to community-based organizations, agencies, and institutions are an essential component of the 21st century health and PE curriculum (Pate et al., 2006; Floyd, et al., 2012). Schools often work with community agencies in all sectors of society – private and commercial, non-governmental and government organizations – to plan and develop programs on a cooperative basis. An important component in developing the joint use of resources is the establishment of a program of communication and interaction. As the joint use of resources implies a sharing of human fiscal and physical resources, it requires that the leaders of cooperating organizations develop close relationships and partnerships among people, agencies, and institutions. A key factor in building cooperative relationships is the importance of leadership that is willing to overcome issues related to territoriality, inertia, legal mandates, tradition, fear of the loss of power, feelings of ownership, the misunderstanding of programs, and others. Such cooperative activities improve the accessibility to programs and services, as well as areas and facilities. In this way, the talented students will be sponsored through different agencies to take part in different competitions. In India specially where there is so much talent but due to a lack of financial funds, many students lacks behind even being so talented. The cooperation from different agencies will help needy students to showcase their talent at different world level competitions. Thus, an adequate training through well-defined curriculum as well as funding

from different agencies is necessary to promote the PE and sports activities.

ROLE OF INFORMATION TECHNOLOGY

Children born in the early part of this millennium are known as the "Generation" (Rosen, 2010; 2011). This group of individuals has access to forms of technology unheard of just two decades ago. They have never known life without wireless high-speed internet connections, cellular phones with data connections, texting or video gaming consoles. Most of them are very familiar with technology interfaces using apps and social media on a regular basis.

The implications of such dramatic changes in access to technology among children and youth should be self-evident in all learning areas. Applications in health and PE pedagogy are available and can be applied to enrich and enhance curricular offerings in most school settings. Numerous technological applications focused on promoting physical activity and fitness are available and easily accessible. However, the application of various technologies will require new student and teacher competencies and practices. The students will be required to demonstrate competency in basic motor skills and also competence in using technology. In addition, such technology will enable individuals to learn in a student-centered self-directed fashion; students will be required to gain greater time management skills to enable appropriate time on a task. Teachers will also be required to gain knowledge of contemporary, technology-based instructional strategies. Furthermore, teachers will need to gain a greater awareness of teaching strategies that support anytime, anywhere learning, and leverage technological applications. Technology holds promise for the way that students learn and also for the way in which teachers teach. Physical and health educators are challenged to become more responsive to a technology-driven environment that provides enhanced opportunities for learners well beyond the walls of the traditional classroom setting. Technology thus can play a key role in generating the interest in PE and sports activities.

CONCLUSION

The current practices and present curriculum need to be modified to generate interest of students in PE and sports and games activities. The future challenges will mainly be the appropriate curriculum activity to be made and followed and to make available adequate funds from various organizations to support the need but intelligent students so that they can only focus on their sports and games without worrying about the funds. The information technology will also play an important role in expanding and creating the interest in physical activities. The importance of PE and sports activities are being identified in now today's world, and efforts are

being made to improve the situations so that more and more talent.

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Overview of Female Athlete Triad

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ABSTRACT

With the rise in women excelling in sports, health related hazards due to the increase in physical activity are not yet spoken about. Female athlete triad was a triad recognized in the 1990s consisting of three unrelated medical conditions, namely, low energy availability, menstrual dysfunction, and low bone mineral density. Risk factors of the triad can often be as serious as multiple fractures, depression, cardiac related pathologies, and attempts to committing suicide. Hence, it becomes extremely important to create awareness and educate the sporting population so that it can be prevented or diagnosed early and be managed.

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INTRODUCTION

Women in sports have proved themselves to be at par with men in the field of sports since the past few years. However not a lot is spoken regarding the medical aspects related to women and the problems faced in sports. Involvement in physical activity has been known to increase the likelihood of occurrence of a syndrome named the female athlete triad (triad). The triad is an occurrence of 3 inter-related medical entities; menstrual dysfunction, low energy availability, and decreased bone mineral density (BMD) in women (Nazem and Ackerman, 2012). This triad has been re-named as the Relative Energy Deficiency in Sports (RED-S) by the International Olympic Committee (IOC) consensus statement, 2014 owing to the fact that low or negative energy availability is also seen in males (Mountjoy et al., 2014).

Disordered eating or irregular eating behavior is noted commonly in aesthetic sports (e.g., gymnastics, cheerleading, figure skating, etc.) and weight class sports (e.g., boxing, taekwondo, judo, etc.) compared to that of ball sports (e.g., handball, football, etc.) both in females and males (Nazem and Ackerman, 2012). A study done evaluating the triad on 200 Indian female athletes showed a prevalence rate of 3.5% (Singh et al., 2015). Even with a low prevalence rate it's important to understand, create awareness, early diagnose and manage the triad before it can lead to any non-reversible risks in the athlete.

HISTORY OF THE TRIAD

In the 1990's as there was rise in participation of women in sports, there was an alarming rise in certain medical conditions such as stress fractures, decrease in BMD and menstrual dysfunction which led to the formation of the female athlete triad a name coined by the American College of Sports Medicine.

Initial components of the triad according to 1997 position stand were eating disorders, amenorrhea and osteoporosis (Otis et al., 1997). Eating disorders were replaced by disordered eating and ultimately considered to be low or negative energy balance due to irregular eating patterns and increased physical activity. Osteoporosis defined as reduced BMD was modified to include osteopenia being a lesser form of bone loss to the triad. The term of amenorrhea was broadened to include other reproductive system disorders such as an ovulation.

COMPONENTS OF FEMALE ATHLETE TRIAD

Low or Negative Energy Availability (EA)

Weight reduction is a common norm in the society as well as in sports reasons being various including peer pressure, demands from the sports or even from the coach. Weight reduction warrants for the athlete to restrict diet or dieting, fasting,

skipping meals which stems to un-systemized eating habits. A self-administered questionnaire answered by college going Indian hockey women players ensured 38.80% correct answers relating to the knowledge of nutrition and diet (Davar, 2012).

EA is calculated by taking the dietary intake and subtracting the energy expended in physical activity (in kilocalories). Low or negative EA commonly in the triad is by unhealthy eating habits which may or may not be psychiatric in nature (Stickler et al., 2015).

Psychiatric eating disorders which are even seen in teenage years are namely anorexia nervosa and bulimia nervosa. Anorexia nervosa involves the person having fear of gaining weight and distorted perception of body image to one's self. Bulimia nervosa involves the person to have recurrent episodes of binge eating a lack of control in eating followed using inappropriate compensatory behaviors to prevent weight gain such as self-induced vomiting, and excessive use of laxatives (American Psychiatric Association, 1994).

Menstrual Dysfunction

Menarche or the start of menses in a female occurs around the age of 15, irregular menses is known as oligomenorrhea and no menses for over the period of 3-month is called amenorrhea. Amenorrhea after menarche without any pathological reproductive medical conditions is often physiological due to suppression of hormones in the hypothalamus-pituitary-ovarian axis.

One theory of this to occur is, Leptin a hormone released from the fat or adipose tissue has a direct influence on the gonadotropin releasing hormone released from the pituitary gland which controls the secretion of estrogen in the body. Low levels of leptin due to the fat loss during weight reduction reduce the estrogen secretion from the ovaries leading to amenorrhea and anovulation.

Low Bone Mineral Density (BMD)

Estrogen hormone reduces the resorption of calcium from the bone, lack of estrogen due to amenorrhea results in increased fragility in the bones making them susceptible to the risk of fractures. Osteopenia defined as reduced BMD but in normal limits is often seen in younger age group of women. Post menopause due to the cessation of estrogen and progesterone reduction in BMD results in Osteoporosis.

Consequences of Female Athlete Triad

The triad or RED-S has a lot detrimental effects of the female athlete not only in terms of performance and physical as well as mentally.

Prevention, Early Detection and Management of the Triad

The prevention of the triad is by creating awareness and educating the athlete and all the people supporting her in

Table 1: Medical and performance related concerns due to the triad (Papanek, 2003)

Medical related	Performance related
Eating disorders	Decreased concentration
Growth imbalances	Fatigue
Fluid imbalances	Light headedness
Electrolyte imbalance	Risk of muscle injuries
Acid/Base imbalance	Risk of skeletal injuries
Thermoregulatory deficits	Atrophy and loss of lean body mass
Cardiac instabilities	Decreased strength and power
Cardiac Arrhythmias	Decreased endurance
Anemia	Dehydration
Skeletal demineralization	Decreased blood flow to skeletal muscle
Stress Fractures	Decreased delivery of oxygen to muscle
Chronic Pain	Increased recovery time
Decreased healing	Increased healing time
Depression	Glycogen depletion
Insomnia	Stress fractures
Amenorrhea	
Infertility	
Risk in pregnancy	
Nutritional deficiency	
Cancer	
Suicide	

bringing out her maximum performance which includes coaches, team mates, fitness trainers, family members, and friends. Nutritional awareness regarding healthy dietary habits and recommended physical activity for healthy weight loss and maintenance.

The early detection of the triad can be done by managers, coaches, and immediate family members by noticing their behavioral patterns and informing the necessary medical personnel. Common signs include a reduction in performance, depression, fatigue, lethargy, bruised knuckles due to inducing vomiting, palpitations, increased injuries, multiple stress fractures, etc.

Management of the triad requires a multi-disciplinary team involving a physician, nutrition specialist, mental health expert, physiotherapist, athletic trainers, and coaches. The primary aim is to improve the menstrual cycle and increase the energy levels by altering the diet and physical activity. Oral contraceptive pills may be given to increase the estrogen levels in the blood. Calcium and Vitamin D3 supplements are given to improve bone health (Nazem and Ackerman, 2012).

CONCLUSION

Female Athlete Triad or Relative Energy Deficit Syndrome, the prevalence among the elite sportswomen in India is not yet known. However, it becomes very important to create awareness and educate the sporting population in order for them to prevent it and recognize it for the early diagnosis thereby reduce the overall health risks.

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Physical Fitness and Its Significance on Physiological Aspects of Volleyball Players in Medak District

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INTRODUCTION

Physical Education is an integral part of the total education of every child from kindergarten through grade 12. Therefore, every student should have the opportunity to participate in a quality physical education program. It is the role of quality physical education programs to help students develop health-related fitness, physical competence in movement activities, cognitive understanding, and positive attitudes toward physical activity so that they can adopt healthy and physically active lifestyles. Quality programs are also important because they provide learning experiences that meet a student's developmental needs, which in turn helps to improve the mental alertness, academic performance, readiness, and enthusiasm for learning.

PHYSICAL FITNESS

"Physical fitness is going through the day with a sense of confidence that you can put whatever the day has in store for you on your back, hold it there for a while, and then set it back down later, with good form. It can give you peace of mind that you are better equipped to handle the physical challenges of daily life, from reaching high to bending low, from running with a purpose, or running with no purpose at all. You can be carrying your whole life in a bag every day to carrying just you, everywhere. Physical fitness is not a race, it's a pursuit. There is no finish line to look for, but a new starting line to cross every day. The only real "goal" is to never finish. Physical fitness is human being."

PHYSIOLOGY

Human physiology is the science of the mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed. The principal level of focus

of physiology is at the level of organs and systems within systems. The endocrine and nervous systems play major roles in the reception and transmission of signals that integrate function in animals. Homeostasis is a major aspect with regard to such interactions within plants as well as animals. The biological basis of the study of physiology, integration refers to the overlap of many functions of the systems of the human body, as well as its accompanied form. It is achieved through communication that occurs in a variety of ways, both electrical and chemical.

Much of the foundation of knowledge in human physiology was provided by animal experimentation. Physiology is the study of function and is closely related to anatomy which is the study of form. Due to the frequent connection between form and function, physiology and anatomy are intrinsically linked and are studied in tandem as part of a medical curriculum.

Statement of the Problem

The purpose of the study is to find out whether or not any significant difference found on physiological aspects in relation to their physical fitness of volleyball players in Medak district.

Objective of the Study

The study is found out the physical and its significance on physiological aspects of volleyball players in Medak district.

Hypotheses

There may not any significant difference on physiological aspects in relation to their physical fitness of volleyball players in Medak district.

Sample of the Study

The study was formulated based on the simple random sampling. The samples were collected from 60 volleyball

players in the age group of 17-21 years from Medak district were considered.

Showing the Sample of the Study

Serial number	Category of subjects	Number of subject
1	Medak district volleyball players	60

Tools Used

This study under investigation selected the following physical fitness activities and test performed on physiological aspects.

Physical Fitness Activities

Speed, Agility, Explosive power, and Endurance.

Physiological Activities

The Harvard step test (pulse rate - 1 min) and breath holding time (1 min).

Data Collection Procedure

A total of 60 Medak district volleyball players have been selected for the study and they have undergone physical fitness activities for 30 days. The pre-test was taken, and then the post-test was administrated after the systematic training of physical fitness activities such as speed, agility explosive power, and endurance on physiological aspects.

RESULTS AND DISCUSSIONS

Table 1 and Graph 1 show the mean, standard deviation (SD), degree of freedom, t-value and significance between pre- and post-tests of Medak district volleyball players in relation to their pulse rate. The mean value of pre-test was 117.28, standard deviation was 1.82 and the mean value of post-test was 138.52, and the standard deviation was 2.98. The obtained t-ratio was 2.73, which was found to be significant at 0.00 levels.

Table 2 and Graph 2 show the mean, SD, degrees of freedom, t-value and significance between pre- and post-tests of Medak

Table 1: The mean values, SD, df, "T" values and P values between pre-test and post of Medak district volleyball players in relation to their pulse rate

Serial number	Subjects	N	Mean±SD	df	T ratio	P value
1	Pre-test	60	117.28±1.82	98	2.73	0.00
2	Post-test	60	138.52±2.98			

SD: Standard deviation, df: Degrees of freedom

Table 2: The mean value, SD, df, "t" value and P value between pre-test and post of Medak district Volleyball players in relation to their breath holding

Serial number	Subjects	N	Mean±SD	Df	T ratio	P value
1	Pre-test	60	38.94±4.12	98	2.76	0.03
2	Post-test	60	35.68±2.31			

SD: Standard deviation, df: Degrees of freedom

district volleyball players in relation to their breath holding. The mean value of pre-test was 38.94, standard deviation was 4.12 and the mean value of post-test was 35.68, and the standard deviation was 2.31. The obtained t-ratio was 2.76, which was found to be significant at 0.01 levels.

CONCLUSION

Moreover, it is finally concluded that physical fitness have yielded significant differences on the physiological aspect of foot-ball players it have scientifically proved better that the Medak district volleyball players have major role to prove their physical fitness in the performance of the game physical fitness variables, viz., speed, explosive power, agility, and endurance.

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A Study on Effect of Variations in Body Composition on Aerobic Capacity among Physically Active and Sedentary Female College Students

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ABSTRACT

It was well established that regular physical activity manifests body composition and physical fitness levels. This study was conducted to identify effect of variations in body composition profile on aerobic capacity among physically active and sedentary female college students. To achieve this objective, sixty females aged between 18 and 22 years who were pursuing under graduation in a professional educational institution were recruited. The anthropometric measures such as height, weight were measured using standard procedures. The body mass index (BMI) and body surface area weight calculated using height and weight data. The body composition profile comprising fat mass and lean body mass were assessed using fat analyzer. The aerobic capacity of the students was assessed by subjecting them to one mile Rock Port Walk test. The results indicate that both physically active and sedentary groups were having normal BMI. The sedentary group had significantly higher fat percentage ($P < 0.011^{**}$) than another group. The physically active group students had a better aerobic capacity which was significantly higher than the sedentary group ($P < 0.000^{***}$). The fat percentage was having significant ($r = -0.656^{**}$) negative correlation with aerobic capacity. From this study, it can be concluded that regular physical activity influences body composition and aerobic capacity. Although they were in the normal nutritional category, sedentary group had higher fat which had an impact on aerobic capacity. Therefore, it can be suggested that participation of students in the regular physical activity must be made compulsory in their college curriculum to enable students to attain desirable body weight, composition and fitness levels.

Keywords: Body composition, Aerobic capacity, Female college students

INTRODUCTION

Physical fitness and physical activity levels of students are issues of current interest among public health and physical education professionals. From the past 10 years, decline in physical activity among young adults has been observed.

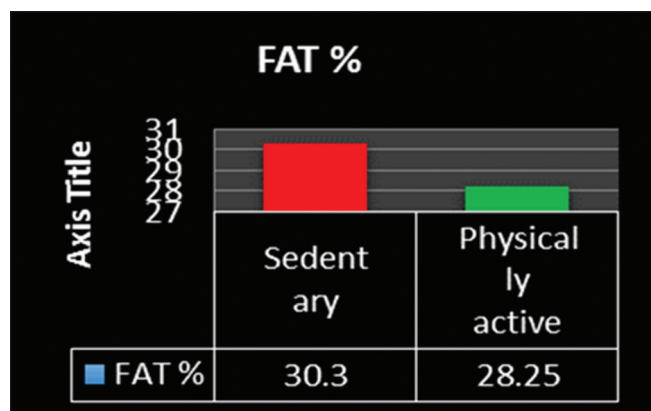
Regular physical activity is an important part of a healthy lifestyle. It is associated with decreased risk of heart disease, obesity and lower levels of stress (Brown, 1991).

There is alarming decline in physical activity among college students. Based on self-reported height and weight,

Table 1

Group	Number of subjects	Age (years)	Height (cm)	Weight (kg)	BMI	BSA
Sedentary	30	18.0±0.80	1.5±1.59	54.4±12.43	21.84±5.20	1.53±0.17
Physically active	30	19.1±1.02	1.5±0.05	54.3±13.04	21.24±4.47	1.54±0.19
F	30	23.432***	1.113 NS	0.008 NS	4.707 NS	4.25 NS

Values are expressed as mean±SD. BMI: Body mass index, BSA: Body surface area, NS: Not significance, SD: Standard deviation



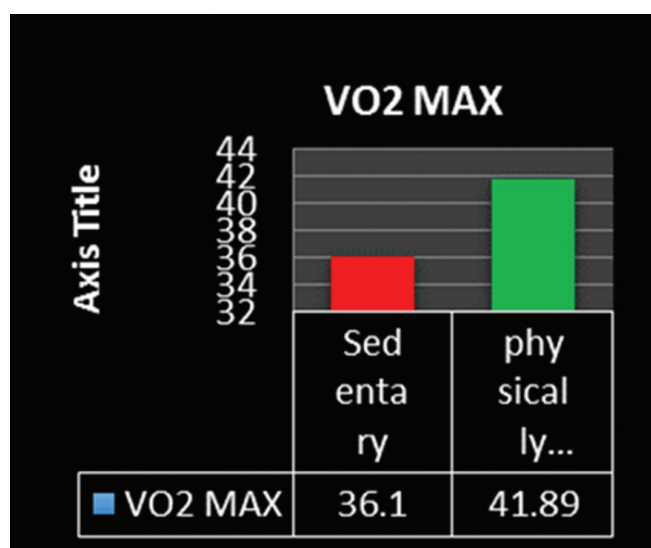
activity affects body composition factors such as body fat percentage, body mass index, and lean body mass. There is a close relationships between the body composition factors, aerobic and cardiovascular fitness. With decrease in body fat results in an increase in aerobic fitness (Brooks, 2002). By considering the above facts, the objective of our study was to assess the BMI, body composition and aerobic capacity of the female sedentary and physically active college students. The study also assessed the effect of regular physical activity and body fat on aerobic capacity in both the groups.

METHODOLOGY

To achieve the objectives of this study, sixty females aged between 18 and 22 years who were pursuing their under graduation in a reputed professional college were taken as subjects. They were drawn into two groups, namely, sedentary students and physically active students. The criteria for this grouping were based on American college of sports medicine (ACSM) guidelines for physical activity (ACSM Guidelines). The anthropometric measures such as height and weight were measured accurately up to the precision of 0.1 cm and 0.1 kg, respectively. The body mass index (BMI) was calculated using height and weight to assess their current nutritional status (Jacobs, 2014). The body surface area (BSA) was assessed by Duboi's formula (BSA). The body composition was assessed by fat analyzer (Omron). The students were subjected to one mile Rock port walk test (Clemente et al., 2009) to assess their aerobic fitness which is used as grade point for cardiorespiratory capacity. The students were made to walk one mile at their best possible pace on the marked track with shoes. Resting heart rate and post exercise heart rate were recorded using pulse oximeter. The time taken for one mile walk was recorded using stop watches. The standard running track was used for this walk test. All the students were given a test trial to make them acquainted with the protocol and later a test was conducted. The maximum oxygen intake was calculated using the formula given by the Rockport walk test. The data were tabulated and SPSS software was used to analyze the data. One-way ANOVA and correlation were used to make comparisons between the two groups.

Table 2			
Group	Number of subjects	Fat %	LBM (kg)
Sedentary	30	30.30±5.03	37.49±6.49
Physically active	30	28.25±5.65	38.05±7.28
F	30	6.961**	0.331 NS

Values are expressed as mean±SD. LBM: Lean body mass, NS: Not significance



approximately 35% of young adults are overweight or obese (Lowry et al., 2008). It is been suggested that physical activity and physical fitness are strongly related (Livingstone and Kemper). The reduction in the physical

RESULTS AND DISCUSSION

The anthropometric data were shown in Table 1. The mean age of sedentary and physically active groups was 18.0 ± 0.80 and 19.1 ± 1.02 , respectively.

Table 3

Group	Number of subjects	RHR beats/minute	Time taken for one mile walk (m)	PEHR beats/minute	VO ₂ Max ml/kg/min
Sedentary	30	93.83±5.33	16.26±1.71	174.73±13.23	36.10±7.27
Physically active	30	88.20±9.10	14.92±1.41	163.60±16.46	41.89±6.90
F	30	8.197***	19.972***	8.052***	26.652***

Values are expressed as mean±SD. RHR: Resting heart rate, PEHR: Post exercise heart rate VO₂ Max: Maximum volume of oxygen, SD: Standard deviation

Both the groups were found to be normally nourished category based on their mean BMI (BMI between 18.5 and 24.9).

From the Table 2, it can be observed that sedentary group had shown significantly higher fat percentage ($P < 0.011$) than the physically active group. The mean fat percentage values of sedentary and physically active groups were found to be 30.30 ± 5.03 , 28.25 ± 5.65 , respectively. Both these groups had higher fat percentage when compared with body composition norms given for this age and sex. It can be observed from Table 2.

Table 3 indicates the aerobic capacity of physically active group was significantly higher than sedentary group ($P < 0.00$). The mean aerobic capacity of physically active group was found to be 88.20 ± 9.10 . On another hand, the mean aerobic capacity of the sedentary group was found to be 36.10 ± 7.27 .

When compared with the aerobic capacity norms of women given by rock port, the mean aerobic capacity of the physically active group was found to be good while the sedentary group was above average. Aerobic capacity is an integral of functional capacities of all systems involved in supply, transportation and energetic oxygen transformation (Ponoroc, 2005). There are various studies in which similar results were shown. Rankovic et al. (2010) in his study concluded a statistically significant higher VO₂ max in athletes as compared to non-athletes. Christie et al. (2001) also recorded similar findings in his study. Vamvakoudis (2007) also reported a higher VO₂ max in players as compared to control group,

In this study, the fat percentage was having significant negative correlation with aerobic capacity. There are studies showing no relation between VO₂ max and body composition (Vamvakoudis, 2007; Buskirk et al., 1957; Treuth and Figueroa, 1998; Maffei and Maffei, 1993; Farrell et al., 1993; Elliot et al., 1989; Maffei and Zaffanello, 1994; Moody et al., 1969; Cooper et al., 1990). Whereas, Pibris et al. (2010) showed a negative correlation in VO₂ max and body fat percentage. Similar results were shown by Davis et al. (1975) and Huttunen et al. (1986). Both body fatness and aerobic fitness have been shown to be risk factors for future health outcomes. However, it is unclear whether these effects are related to one another or are independent risk factors.

It has been argued that aerobic fitness is the primary factor influencing future health outcome. Unfortunately, the trends in lifestyle and reduction in physical activity definitely alarms us for future health of young adults.

CONCLUSIONS

It can be concluded, from this study, that regular physical activity influences body composition in such a way that it increases LBM and reduces fat percentage thereby reducing the risk of obesity and its related health risks. The regular physical activity had a positive impact on aerobic capacity by improving efficiency of cardiovascular and respiratory adaptability combined with enhanced muscular efficiency. The fat percentage was having significant negative correlation with aerobic capacity. Such periodical evaluation of students would help to understand the changes in physique and physiological efficiency. It can be suggested from this study that participation of students in the regular physical activity must be made compulsory in their college curriculum to enable students to attain desirable body weight, composition and fitness levels.

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A Comparative Study of Aerobic Fitness among Basketball Players and Football Players of Osmania University

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ABSTRACT

The purpose of the study is to find the aerobic fitness among basketball and football players of Osmania University (OU). The sample for the study consists of 75 basketball players and 75 football players those who participated in the OU Inter College Tournaments for the year 2015-2016. To assess the endurance the 12 min run cooper test is conducted by the technical officials for basketball and football players. The results of the study show that the football players are having the good aerobic fitness compare to basketball players.

Keywords: Endurance, Football, Basketball

INTRODUCTION

Basketball is sports played by two teams of five players on a rectangular court. The objective is to shoot a ball through a hoop 18" (46 cm) in diameter and 10 ft (3.0 m) high mounted to a backboard at each end. Basketball is one of the world's most popular and widely viewed sports.

A team can score a field goal by shooting the ball through the basket during regular play. A field goal scores three points for the shooting team if the player shoots from behind the three-point line, and two points if shot from in front of the line. The team with the most points at the end of the game wins, but additional time (overtime) is issued when the game ends in a draw. The ball can be advanced on the court by bouncing it while walking or running or throwing it to a teammate. It is a violation to lift or drag one's pivot foot without dribbling the ball, to carry it, or to hold the ball with both hands then resume dribbling.

As well as many techniques for shooting, passing, dribbling and rebounding, basketball teams generally have player

positions and offensive and defensive structures (player positioning). Traditionally, the tallest and strongest members of a team are called a center or power forward, while slightly shorter and more agile players are called small forward, and the shortest players or those who possess the best ball handling skills are called a point guard or shooting guard.

Football refers to a number of sports that involve, to varying degrees, kicking a ball with the foot to score a goal. Unqualified, the word football is understood to refer to whichever form of football is the most popular in the regional context in which the word is soccer. Various forms of football can be identified in history, often as popular peasant games. Contemporary codes of football can be traced back to the codification of these games at English public schools in the 18th and 19th centuries. The influence and power of the British Empire allowed these rules of football to spread to areas of British influence outside of the directly controlled Empire, though by the end of the nineteenth century, distinct regional codes were already developing: Gaelic football, for example, deliberately incorporated the rules of local traditional football games to maintain their heritage. In 1888,

The Football League was founded in England, becoming the first of many professional football competitions. During the 20th century, several of the various kinds of football grew to become among the most popular team sports in the world.

The purpose of the study is to find out the aerobic fitness among basketball and football players of Osmania University (OU).

METHODOLOGY

The sample for this study consists of 75 male basketball players and 75 male football players between the age groups of 18-22 years those who have participated in the OU Inter college basketball and football championships for the year 2015-2016. To assess the aerobic fitness 12 min cooper test is conducted by the qualified technical officials.

The cooper 12 min run is a popular maximal running test of aerobic fitness, in which football and basketball players try and cover as much distance as they can in 12 min.

Purpose: To test aerobic fitness.

Equipment required: Flat oval or running track, marker cones, recording sheets, stop watch.

Procedure: Place markers at set intervals around the track to aid in measuring the completed distance. Participants run for 12 min, and the total distance covered is recorded. Walking is allowed, though the participants must be encouraged to push themselves as hard as they can to maximize the distance covered.

DISCUSSION

The results of this study show that football players are having more aerobic fitness than basketball players.

In Table 1, the mean values of 12 min run test of football players is 1680.90 and basketball players is 1590. The standard deviation of football players is 237.41 and basketball players is 217.64 and t is 2.421 and Sig. (2-tailed) is 0.17.

Football is the most favorite sports in the world. Its popularity is to such extent that millions of interested people play football at different levels. Hence, there is football league in most of the countries and many players are engaged in it. Since one full football season usually lasts 11 months, the

Table 1: Mean values and independent samples test of 12 min run between football and basketball players

Group statistics			
Test	N	Mean	SD
12 min run test			
Football players	75	1680.90	237.41
Basketball players	75	1590.85	217.64
Independent samples test			
t-test for equality of means			
	t	df	Sig. (2-tailed)
12 min run test			
Equal variances assumed	2.421	148	0.017

SD: Standard deviation

training exercises should be designed in a way to enable players to meet physiological demands of play and also footballers requires aerobic fitness.

CONCLUSION

It is concluded that football players are having better aerobic fitness than basketball players. This study also helps the physical educators and coaches to improve their training regime to excel in basketball and football.

RECOMMENDATIONS

It is recommended that motor qualities development coaching must be given by coaches to promote speed, endurance, strength, agility, etc., among the basketball and football players. Similar studies can be conducted among female players and in other sports and games. This study also useful to develop the aerobic fitness among basketball and football players.

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Physical Fitness, Self-esteem, and Attitudes toward Physical Activity of High School Boys in Mandya City

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ABSTRACT

A total of 165 adolescent boys took measures of physical fitness, general self-esteem, and attitudes toward physical activities. High-fit compared to low-fit boys were higher in self-estimates of physical ability and self-reported attraction to physical activities but not significantly different in general self-esteem nor in reported extent of participation in voluntary physical activities. In addition, significant correlations were observed between self-estimates of physical ability and attraction to physical activity, and between attraction to physical activity and extent of voluntary participation in physical activity.

INTRODUCTION

Physical fitness is thought by many to be an important ingredient in feelings of emotional well-being and self-esteem. Furthermore, the development of positive attitudes toward physical activities and the self is thought to lead to participation in activities that keep one physically fit.

The problem considered in the present study was whether the hypothesized relationships between physical fitness, self-esteem, and positive attitudes toward physical activity did indeed exist in a group of adolescent boys. In addition, the study sought to assess the level of voluntary participation in physical activities to see whether, as is commonly assumed, it is positively related to fitness and to the other variables in the study.

Many studies in physical education have attempted to relate personality characteristics to physical fitness. However, only one could be found that dealt with subjects' perceptions of themselves and their skills or with their interest in these skill activities.

In this study, a group of adolescent high school boys in Mandya city was divided into high- and low-fitness groups on the basis of scores on the AAHPER Youth Fitness Test. Then, the following hypotheses, stated in their null form, were tested that:

High- and low-fitness groups did not differ significantly on a measure of general self-esteem:

1. High- and low-fitness groups did not differ in the extent of participation in voluntary physical activities
2. High- and low-fitness groups did not differ in their concepts of their own physical abilities
3. High- and low-fitness groups did not differ in their attitudes toward participation in physical activities.

METHODOLOGY

Subjects

Subjects were 165 boys enrolled in five physical education classes in two Government high schools in Mandya. Tests were administered during physical education class periods. For purposes of analysis, the sample was divided into three age classifications: 12-13, 14-15, and 16-17. High- and low-fitness groups for each age classification were then established on the basis of scores on the AAHPER Youth Fitness Test.

Based on each subject's standing in the national norms of his age group, percentile ranks for each subtest were summed. The upper 50% of scores in each age group identified high-fit boys and the lower 50% of scores identified low-fit boys.

Test Administration

Measures of physical fitness: All subjects received the following items from the AAHPER Youth Fitness Test

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(AAHPER,1965): (1) Pull-ups, (2) sit-ups, (3) shuttle run, (4) standing broad jump, (5) 50-yard dash, (6) softball throw, and (7) 600-yard run-walk.

Self-esteem: All subjects were given a 10-item self-esteem scale developed and used extensively by Rosenberg.

The level of voluntary physical activity: 36 sports and recreational activities requiring moderate to vigorous physical activity were arranged in two columns on a sheet. At the side of each activity were two blanks. Subjects were asked, first, to underline those activities in which they customarily participated outside of physical education classes. They were then asked to estimate the number of weeks per year that they spent at an activity and to enter this estimate on the first blank to the right of the underlined activity. The second blank was used to estimate the average number of hours per week spent at this activity. Summing the product of the two estimates for all underlined activities provided a measure of voluntary physical activity for the year.

Analysis

Table 1: Mean score and national percentiles on AAPHER subtests

Subject	Age					
	12-13		14-15		16-17	
	Present		Present		Present	
	Above 50 th		Above 50 th		Above 50 th	
	\bar{X}	percentile	\bar{X}	percentile	\bar{X}	percentile
Pull-ups	2.81	47	5.25	46	8.55	73
Sit-ups	86.34	86	64.25	38	97.94	97
Shuttle run	11.20	35	10.38	38	9.12	91
Standing broad jump	66.15	40	76.39	41	84.10	55
50-yard dash	8.23	18	7.56	21	7.06	23
Softball throw	120.38	36	153.55	38	123.09	34
600-yard run	141.77	41	124.07	26	112.27	55

RESULTS

To test the major hypotheses of the study the high- and low-fitness groups were first identified for each of the three age levels, and appropriate statistical tests were then employed.

Hypothesis 1: High- and low-fit boys do not differ in general self-esteem. Distributions of self-esteem scores for high- and low-fit groups were compared by a Chi-square procedure. No evidence was therefore obtained to indicate that high- and low-fit boys differed in general self-esteem. No evidence

was obtained to indicate that boys in the different age groups differed in general self-esteem.

Hypothesis 2: High- and low-fit boys do not differ in the extent of participation in voluntary physical activities. Distributions of the number of activities reported by boys did not differ significantly as a function either of fitness level or of grade level. No significant differences were noted between fitness levels, between age groups, or for the interaction of fitness level with age.

Hypothesis 3: High- and low-fit boys do not differ in self-estimates of their physical abilities. The high-fit group had higher estimates of their physical abilities than did the low-fit group. No significant differences were noted among age levels nor were the interaction between fitness and grade level significant.

Hypothesis 4: High- and low-fit boys do not differ in expressed attraction to physical activities. The high-fit group tended to express greater attraction to physical activities than did the low-fit group.

Table 2: Mean scores on selected variables for high- and low-fit boys

Variable	High-fit	Low-fit
Total participation	29.9	28.5
Estimation	32.1	24.0 ^a
Attraction	19.7	16.5 ^a
Total test score	51.7	40.5 ^a

No significant differences were noted among age levels nor were the interaction between fitness and grade levels significant. For the group as a whole, there were no significant correlations between self-esteem and measures either of voluntary participation or of attitudes toward physical activity. In the 12-13-year-old group, there was a significant correlation between self-esteem and boys' estimates of their own abilities. In that age group boys with higher estimates of their abilities tended to have the higher self-esteem. A similar relationship was not present in the older groups.

Differences among the age groups were also noted in correlations between self-esteem and extent of participation. Evidently, the relationship between self-esteem and level of voluntary activity becomes more positive as a function of age.

Correlations between extent of participation and attitudes toward physical activity were positive. However, correlations between total participation and each of the two attitude scales were not statistically significant. A number of activities did correlate significantly with both estimation and attraction subscales of the Physical Activity Attitude Inventory. As was expected, the two measures of voluntary participation, total

Table 3: Correlation coefficients between selected variables

	Total participation	Number of activities	Estimation	Attraction	Total
Self-esteem	0.02	-08	0.21	0.07	0.18
Total participation		0.54 ^b	0.18	0.16	0.19
Number of activities			0.24 ^b	0.37 ^b	0.31 ^b
Estimation				0.59 ^b	0.95 ^b
Attraction					0.81 ^b

amount of participation and number of activities, correlated positively.

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Effect of Circuit Training for Development of Endurance among Football Players of Andhra University

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ABSTRACT

The purpose of this study was to find out the effect of circuit training for the development of endurance among football players. The sample for this study consists of 20 male football players of Andhra University out of which 10 are experimental group and 10 are controlled group. The circuit training comprises 6-10 strength exercises that are completed one exercise after another such as squat jumps, medicine ball throws, sit-ups, steps ups, hopping shuttles, skipping, and sit-ups were given to experimental group on alternate days, i.e., three sessions per week and controlled group was given the general training for six weeks. Pre- and post-tests were conducted in 12 min run cooper test to measure the endurance among experimental group and controlled group. This study shows that due to the circuit training there is an improvement of the experimental group in endurance, and controlled group is decreased in performance in endurance. It is concluded that due to circuit training there will be improvement in endurance among Football Players

Keywords: Circuit training, Endurance, Squat jumps

INTRODUCTION

Circuit training is a form of body conditioning or resistance training using high-intensity aerobics. It targets strength building and muscular endurance. An exercise “circuit” is one completion of all prescribed exercises in the program. When one circuit is complete, one begins the first exercise again for the next circuit. Traditionally, the time between exercises in circuit training is short, often with rapid movement to the next exercise. The program was developed by R.E. Morgan and G.T. Anderson in 1953 at the University of Leeds in England, circuit training provides a format that allows boxers to condition themselves physically, as well as focus on the development of specific skills. Circuits can focus on the development of endurance, speed or power. Focus on one skill or combine various exercises to cover them all in a single circuit to become a better-conditioned boxer. Football refers to a number of sports that involve, to varying degrees, kicking a ball with the foot to score a goal. Unqualified, the

word football is understood to refer to whichever form of football is the most popular in the regional context in which the word is soccer.

METHODOLOGY

The purpose of this study was to find out the effect of circuit training for the development of endurance among football players of Andhra University. The sample for this study consists of 20 male players of Andhra University out of which 10 are experimental group and 10 are controlled group.

The circuit training comprises 6-10 strength exercises that are completed one exercise after another such as squat jumps, medicine ball throws, sit-ups, steps ups, hopping shuttles, skipping, and sit-ups were given to experimental group on alternate days, i.e., three sessions per week and controlled group were given the general training for six weeks. Pre- and post-tests were conducted in 12 min run cooper test to

Table 1

12 min run cooper test	N	Pre-test	Post-test	t	Sig.
Experimental group Football players	10	2655.50	2806	3.35	0.004
Control group Football players	10	2647.50	2640		

measure the endurance among experimental and controlled groups.

RESULTS

This study shows that due to the circuit training there is an improvement of the experimental group in endurance, and controlled group is decreased in performance in endurance to less levels due to the general training.

Table 1 showing the mean values of experimental group football players and control group football players in 12 min run cooper test in pre- and post-tests

The mean values of the experimental group football players are 2655.50 in pre- and post-tests are 2806 in 12 min run cooper test. There is an improvement of experimental group

from 2655.50 to 2806 due to the circuit training. The mean values of control group football players are 2647.50 in pre- and post-tests are 2640 in 12 min run cooper test. There is a slight decrease in mean values of control group from 2647.50 to 2640 due to the general training.

CONCLUSION

It is concluded that due to circuit training there is an improvement of endurance among football players. Endurance soccer training is the most important element of the conditioning program. Circuit training helps in the development of endurance ability among football players. Running at any intensity in football for 90 min requires a high level of stamina.

RECOMMENDATIONS

Similar studies can be conducted on women football players and other sports and games. The coaches can include the circuit training in their physical conditioning programs to improve the endurance among the football players.

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The Study of Psychological Skills of Female Elite Hockey Players

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INTRODUCTION

Field hockey is the oldest known ball-and-stick game and is believed to date from the earliest civilizations, although there is no conclusive evidence of exactly how and where the game began. A field hockey game consists of two half of 35 min, each in men's play and 30 min, in women's play with an intermission of 5-10 min, match analyses at the level show that field hockey is a high-intensity non-continuous game in which the physiological demands are considerable placing it in the category of heavy exercise. To obtain expert status in field hockey players must excel in four domain, i.e., technical, tactical, and psychological. Edwards et al. (1996), modern sports training gives greater emphasis on preparing the athletes psychologically than physically, though both play a significant role. No player without will to win and self-confidence can achieve the required goal. The psychological preparation of athlete is an important aspect of the total preparation of the athlete for better performance.

Gould and Weinberg (1995) believed that performing psychological skills such as concentration, self-confidence, controlling psychological level, goal setting, imagery, and self-talk is very useful to coaches and athletes. The ability to conduct such skills is significant to the midfielder as their primary tactical role within a team is to link both the defensive and forward units.

This study is carried out to some psychological skills of female elite hockey players about their psychological skill levels so that they can detect the weaknesses of their psychological fitness, and the coaches can help the athletes to obtain the peak athletic performance in their

future competitions by adopting psychological fitness plans.

Statement of the Problem

The main purpose of the present investigation was to study the psychological skills of female elite hockey players playing in different (Forward, Half Backs, Full Back.) positions.

Delimitations

The study was delimited to the measurement of psychological skill ability.

The study was delimited to female elite hockey players (Forward, Half Backs, Full Back.).

The study was delimited to 60 female subjects who participated in state and inter university levels in Karnataka state.

The study was delimited to only six psychological skills and it has 43 questions.

The study was delimited to subjects in the age group of 17-27 years.

Their study is delimited to the administration of psychological skill inventory developed standardized by National Olympic Comity (NOC*).

Limitations

The investigator had no control over the mood. Temperament and the emotional states of the subjects at the time of answering the questionnaire.

The investigator had no control over the other internal or external factors and circumstances action on the subjects while answering the questionnaires.

The investigator had to discard the questionnaire where the answers were incomplete.

Hypotheses

Null hypotheses – It was hypothesized that there may not be any significant difference in psychological skills among all position players.

Alternative hypotheses - It was hypothesized that there may be a significant difference in psychological skills among all position players.

METHODOLOGY

Selection of Subjects

The subjects for this study were female elite hockey players who represented state and university level tournaments in the during 2005-2010.

Sample Size

The sample size for the present investigation consisted of 60 Female elite hockey players (Forward 20, Half Back 20 and Full back 20) who were in the age group of 17-25 years.

Description of the Questionnaire

The psychological skill test designed and standardized by NOC* NSF Dutch National Olympic committee consists of a series of questions numbering 43. Each item of the question in the questionnaire has got 5 alternative answers.

Analysis

The ANOVA technique was used for the purpose of the study. Main findings of the study from the above infer the following.

Motivation

A non-significant difference was observed in the mean motivation scores of players playing in forward, half back, and full back positions. F value of 0.580 was found to be non-significant ($P=0.563$). The mean motivation score of forward, half back, and full backs were 34.15, 33.65, and 34.60, respectively, which are statistically same.

Anxiety control

A non-significant difference was observed in the mean Anxiety Control scores of players playing in forward, half back and full back positions. F0.113 value of was found to be non-significant ($P = 0.894$). The mean Anxiety

Control score of forward, half back, and full backs were 20.50, 20.85, 20.65, respectively, which are statistically same.

Mental preparation

A non-significant difference was observed in the mean mental preparation scores of players playing in forward, half back, and full back positions. F value of 1.017 was found to be non-significant ($P = 0.368$). The mean mental preparation score of forward, half back, and full backs were 32.10, 22.20, 23.15, respectively, which are statistically same.

Team emphasis

A non-significant difference was observed in the mean team emphasis scores of players playing in forward, half back, and full back positions. F value of 0.050 was found to be non-significant ($P = 0.951$). The mean team emphasis score of forward, half back, and full backs were 23.80, 23.70, 23.50, respectively, which are statistically same.

Concentration

A non-significant difference was observed in the mean concentration scores of players playing in forward, half back, and full back positions. F value of 0.364 was found to be non-significant ($P = 0.696$). The mean Concentration score of forward, half back, and full backs were 22.35, 23.10, 22.45, respectively, which are statistically same.

Confidence

Forward, half back, and full back differ significantly in their mean confidence scores as the observed F value of 5.347 was found to be significant of 0.007 level the mean confidence scores for half back was found to be significantly high (mean = 28.6) than full back and forward (mean = 25.40 and 26.10, respectively). This is further confirmed by Duncan multiple range test. There is no difference in total psychological skills of female elite hockey players.

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Effects of Suryanamaskar on Selected Physiological Variables among Female University Students of Andhra University

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INTRODUCTION

Yoga

Yoga is a science of right living and it works when integrated in our daily life. It works on all aspects of the person: The physical, mental, emotional, psychic, and spiritual. Yoga refers to traditional physical and mental disciplines that originated in India. Pranayama is the formal practice of controlling the breath, which is the source of our prana, or vital life force.

Prāṇāyāma is a Sanskrit word alternatively translated as “extension of the *prāṇa* (breath or life force)” or “breath control.” The word is composed from two Sanskrit words: *prana* meaning life force (noted particularly as the breath), and either *yama* (to restrain or control the *prana*, implying a set of breathing techniques where the breath is intentionally altered in order to produce specific results) or the negative form *ayāma*, meaning to extend or draw out (as in extension of the life force). It is a yogic discipline with origins in ancient India. **Surya Namaskara** is a scientific technique combining twelve asanas in a sequence. Its origins lie in India where its large Hindu population worships Surya, the Hindu solar deity. This sequence of movements and asanas can be practice on varying levels of awareness, ranging from that of physical exercise in various styles to a complete *sadhana* which incorporates *asana*, *pranayama*, *mantra* and *chakra* meditation. It is often the beginning vinyasa within a longer yoga series. *Sūrya Namaskāra* may also refer to other styles of “Salutations to the Sun.” The sun salutation is regularly practice in many Indian schools.

Statement of the Problem

The purpose of the study was to find out the effects of Surya Namaskar on selected physiological variables among female University Students of Andhra University.

Objectives

This study will help to identify the appropriate training to improve the physiological performance among female University Students. This study will also helpful for the Physical Education Teachers, Yoga Teachers and Coaches. To adopt Surya Namaskar Practice to improve the physiological variables.

Delimitations

The study was delimited to 30 female University Students of Andhra University between the age group of 19-25 years.

The study was confined to the following parameters.

Dependent Variable

Average heart rate: Heart rate monitor

Blood pressure: Sphygmomanometer

Independent Variable

Experimental group: Surya Namaskar (12 repetitions) – 8 Weeks

Control group: No training

METHODOLOGY

The purpose of the study was to find out whether there would be any significant influence on selected physiological variables as a result of Surya Namaskar practice. To achieve the purpose, 30 female University Students were selected from Andhra University. They were selected randomly. That is Experimental group and Control group. Experimental group was underwent to Surya Namaskar practice.

Dependent Variable

Average heart rate and blood pressure.

METHODOLOGY

The subjects were selected for this study through the random group design consisting of pre- and post-tests. 30 female University Students were selected. The groups are experimental group and control group. Before the experiment physiological variables were tested through using heart rate monitor and sphygmomanometer. After the experimental period of 8-week, post-test was conducted and data were collected. To measure the physiological variables average heart rate and blood pressure, heart rate monitor and sphygmomanometer were used, and data was taken for pre- and post-test values after the training period.

DISCUSSION

To measure the average heart rate, heart rate monitor were used. To measure the blood pressure, sphygmomanometer were used scores will be taken in Kcal, mmHg and b/m.

Table 1: Computation of “t” ratio of average heart rate

Group	Mean
Control group	
Pre-test	120.4
Post-test	119.2
Experimental group	
Pre-test	114.4
Post-test	107.0

The mean of heart rate of the experimental group in pre-test is 114.4 after the Suryanamaskar session, and post-test heart rate of the experimental group is 107.0 The heart rate is reduced due to Suryanamaskar training.

Table 2: Computation of “t” ratio of blood pressure

Group	Mean
Control group	
Pre-test	97.53
Post-test	97.46
Experimental group	
Pre-test	97
Post-test	95

The mean of blood pressure of experimental group in pre-test is 97 after the Suryanamaskar session and post-test blood pressure of experimental group is 95. The blood pressures are reduced due to Suryanamaskar training.

CONCLUSION

Overall the Suryanamaskar practices were more effective on the significant changes on physiological variables among female university students.

RECOMMENDATIONS

The findings of this study proved that there was a significant improvement due to Suryanamaskar on physiological variables among female University Students. It is recommended that instead of giving a traditional way of training method, it is advised to adapt a new kind of Yoga practice for all population for better living and better doing.

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A Comparative Study of Speed among 100 M Runners and Long Jumpers of Hyderabad District

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INTRODUCTION

In the sprinting events, there is a need to have an efficient start. The crouch and block starts and the correct positions for the “On your marks” and “Set” positions.

There are three types of sprint starts:

- **Bunch or bullet start:**
The toes of the rear foot are approximately level with the heel of the front foot and both feet are placed well back from the starting line.
- **Medium start:**
The knee of the rear leg is placed opposite a point in the front half of the front foot.
- **Elongated start:**
The knee of the rear leg is level with or slightly behind the heel of the front foot.

Motor Components required for Sprinters and Long Jumpers

1. Speed/Quickness, Balance and Coordination
2. Motivation and Self Confidence, Skill and Technique
3. Strength and Power, Reaction Time
4. Flexibility, Agility, Body Size and Composition

METHODOLOGY

The purpose of the present study was to find out the speed among 100 m runners and long jumpers of Hyderabad District.

The sample for the present study consists of 20 male 100 m runners and 20 male long jumpers players of

Hyderabad district. To assess the speed, the 30 m run was conducted.

30 m Run

Sprint or speed tests can be performed over varying distances, depending on the factors being tested and the relevance to the sport.

Purpose: The aim of this test is to determine acceleration and speed.

Equipment required: Measuring tape or marked track, stopwatch, cone markers, flat and clear surface of at least 50 m.

Procedure: The test involves running a single maximum sprint over 30 m, with the time recorded.

Results: Two trials are allowed, and the best time is recorded to the nearest 2 decimal places.

RESULTS AND DISCUSSION

The results of the study show that 100 m runners are having better speed compare to long jumpers.

Mean values and independent samples test of 30 m run test between 100 m runners and long jumpers.

Variables	Group	Mean±SD	t	P value
30 m run test	100 m runners	3.48±0.115	4.62	0.000
	Long jumpers	3.57±0.102		

*Significant at 0.05 level. SD: Standard deviation

In Table 1, the mean values of 30 m run of 100 m runners is 3.48 and long jumpers players is 3.57 the average mean of 100 m runners is lesser than the long jumpers. It was found that 100 m runners are having good speed compare to compare to the long jumpers. Speed plays an important role in sprints to exhibit the high level of performance.

CONCLUSION

1. It is concluded that 100 M runners are having better speed than long jumpers.
2. Conditioning exercises play a major role for improvement of speed among sprinters and jumpers.

RECOMMENDATIONS

1. Similar studies can be conducted on other events and among females.
2. This study also helps the physical educators and coaches to improve their training regime to excel in sprints and jumps.

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A Comparative Study of Agility among Kho-Kho and Kabaddi Players of Schools in Nizamabad District

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INTRODUCTION

Kabaddi is contact sports that originated in Ancient India. The title Kabaddi is a generic term used to describe the following: International Kabaddi. National Kabaddi recognized by the Amateur Kabaddi Federation of India: National style (which resembles the Sanjeevani style), Circle style (the Punjab style), Indoor and national games, Beach Kabaddi and National professional league Kabaddi. The three national styles recognized by the International Kabaddi Federation: Sanjeevani, Gaminee, and Amar; Punjab Circle style governed by the Amateur Circle Kabaddi Federation of India. A number of similar contact sports which are peculiar to various regions such as *hadudu* in Bangladesh, *baibalaa* in Maldives, *chedugudu* in Andhra Pradesh, *sadugudu* in Tamil Nadu and *Hututu* in Maharashtra. Kabaddi initially became famous in Punjab Region as it was part of their per martial tradition, and is popular throughout South Asia, and has spread to Southeast Asia, Japan and Iran.

Pro Kabaddi League was introduced in 2014 in India based on Indian Premier League. The first edition of the tournament had begun at 26 July 2014 with eight franchises based at eight different cities in India consisting of players from worldwide. Jaipur Pink Panthers won the inaugural edition. The other teams in the competition were U Mumba based at Mumbai, Bengaluru, Bulls based at Bengaluru, Delhi Dabhangs based at Delhi, Puneri Paltans based at Pune, Telugu Titans based at Vizag\Visakhapatnam, Bengal Warriors based at Kolkata and Patna Pirates based at Patna. The broadcast rights were purchased by the star sports network. The Pro Kabaddi League uses the National Kabaddi style.

Kho-Kho is a tag sports played by teams of 12 players who try to avoid being touched by members of the opposing team, only 9 players of the team enter the field. It is one of the two most popular traditional tag games of the Indian subcontinent, the other being Kabaddi. Apart from the Subcontinent, it is also played in South Africa.

Asian Kho-Kho Federation (A.K.K.F.) was established in the year 1987 during 3rd SAF Games, held at Kolkata, India. The member country was India, Bangladesh, Pakistan, Sri Lanka, Nepal and Maldives Kho-Kho made its entry into International Sports Arena Via 1st Asian Kho-Kho Championship Held At Kolkata, India. In 1996, Organized By West Bengal Kho-Kho Association Under the Auspices of Kho-Kho Federation of India And SIAN Kho-Kho Federation on "Tera Flex" Court at Netaji Subhash Indoor Stadium, Kolkata, West Bengal, India, in a most beautiful manner. India and Bangladesh were Winner and Runner-up, respectively. The participants were Bangladesh, Pakistan, Sri Lanka, Nepal and host India. 2nd Asian Kho-Kho Championship was held in Bangladesh in the year 2000 at Mirapur Indoor Stadium, Dhaka, Bangladesh has strengthened the approach of the game Kho-Kho in the International Arena. India, Sri Lanka, Pakistan, Nepal, Japan, Thailand and host Bangladesh were participants of the Championship.

METHODOLOGY

To find out the agility between male Kabaddi and male Kho-Kho players studying in schools of Nizamabad District.

Table 1: Mean values of shuttle run test between Kabaddi and Kho-Kho players

	Group	N	Mean	SD	SEM	t	df	Sig. (2-tailed)
Shuttle run test	Kabaddi players	20	15.39	0.56	0.17	2.53	38.00	0.02
	Kho-Kho players	20	14.10	1.20	0.37			

SD: Standard deviation, SEM: Standard error of mean

Sample

The sample for this study consists of 20 male Kabaddi and 20 male Kho-Kho players of schools in Nizamabad District. Agility Shuttle Run Test was conducted among Kabaddi and Kho-Kho players.

Agility Shuttle Run Test

This test describes the procedure as used in the President's Challenge Fitness Awards. The variations listed below give other ways to also perform this test. **Purpose:** This is a test of speed and agility, which is important in many sports. **Equipment required:** Wooden blocks, marker cones, measurement tape, stopwatch, non-slip surface.

Procedure: This test requires the person to run back and forth between two parallel lines as fast as possible. Set up two lines of cones 30 feet apart or use line markings, and place two blocks of wood or a similar object behind one of the lines. Starting at the line opposite the blocks, on the signal "Ready? Go!" the participant runs to the other line, picks up a block and returns to place it behind the starting line, then returns to pick up the second block, then runs with it back across the line. **Scoring:** Two or more trails may be performed, and the quickest time is recorded. Results are recorded to the nearest tenth of a second.

RESULTS AND DISCUSSION

In Table 2 the mean values in shuttle run test of Kabaddi is 15.39, and Kho-Kho players is 14.10. The Kho-Kho players are having better agility compare to Kabaddi players.

CONCLUSION

It is concluded that Kho-Kho players are having better agility than Kabaddi players. Conditioning Exercises plays a major role for the improvement of motor abilities among Kabaddi and Kho-Kho players.

RECOMMENDATIONS

Similar studies can be conducted on other events and among females.

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Comparison of Explosive Strength among Volleyball and Basketball Players of Khammam

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INTRODUCTION

Volleyball is a team sports in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules. It has been a part of the official program of Games since 1964.

The complete rules are extensive. But simply, play proceeds as follows: A player on one of the teams begins a "rally" by serving the ball (tossing or releasing it and then hitting it with a hand or arm), from behind the back boundary line of the court, over the net, and into the receiving team's court. The receiving team must not let the ball be grounded within their court. The team may touch the ball up to 3 times, but individual players may not touch the ball twice consecutively. Typically, the first two touches are used to set up for an attack, an attempt to direct the ball back over the net in such a way that the serving team is unable to prevent it from being grounded in their court.

Basketball is sports, generally played by two teams of five players on a rectangular court. The objective is to shoot a ball through a hoop 18" (46 cm) in diameter and 10 ft (3.048 m) high mounted to a backboard at each end. A team can score a field goal by shooting the ball through the basket during regular play. A field goal scores three points for the shooting team if the player shoots from behind the three-point line, and two points if shot from in front of the line. A team can also score via free throws, which are worth one point after the other team is assessed with certain fouls. The team with the most points at the end of the game wins, but additional time (overtime) is issued when the score is tied at the end of regulation. The ball can be advanced on the court by throwing it to a teammate, or by bouncing it while walking or running

(dribbling). It is a violation to lift, or drag, one's pivot foot without dribbling the ball, to carry it, or to hold the ball with both hands then resume dribbling.

METHODOLOGY

The sample for the present study consists of 12 male volleyball players and 12 male basketball players between the age groups of 18-20 years of Khammam district.

To assess the explosive strength, the standing broad jump was conducted on volleyball and basketball players by the qualified technical officials.

Standing Broad Jump

The standing long jump, also called the broad jump, is a common and easy to administer test of explosive leg power.

Purpose

To measure the explosive power of the legs.

Equipment required

Tape measure to measure distance jumped, non-slip floor for takeoff, and soft landing area preferred. Commercial long jump landing mats are also available. The take offline should be clearly marked.

Procedure

The athlete stands behind a line marked on the ground with feet slightly apart. A two-foot take-off and landing are used, with swinging of the arms and bending of the knees to provide forward drive. The subject attempts to jump as far as possible, landing on both feet without falling backward.

Table 1: Mean values and independent samples test of standing broad jump between volleyball and basketball players

Variables	Group	Mean±SD	t	Sig.
Standing broad jump	Volleyball	2.98±0.147	-1.60	0.126
	Basketball	2.88±0.145		

*Significant at 0.05 level. SD: Standard deviation

Scoring

The measurement is taken from take-off line to the nearest point of contact on the landing (back of the heels). Record the longest distance jumped, the best of three attempts. Attempts are allowed.

RESULTS AND DISCUSSION

This study shows that volleyball players are having better explosive strength compare to the basketball players.

Table 1 showing the mean values and independent samples test of standing broad jump between volleyball and basketball players.

In Table 1, the mean values of volleyball players in standing broad jump are 2.98 and basketball players are 2.88. The mean average of this study shows that volleyball players are having good explosive strength compare to the basketball players.

CONCLUSION

1. It is concluded that volleyball players are having better explosive strength than basketball players.
2. A role for improvement of physical fitness and strength for cricketers and softball players.

RECOMMENDATIONS

1. Similar studies can be conducted on other sports and girls and also among female players.
2. This study also helps the physical educators and coaches to improve their training regime to excel in performance in all sports and games.

REFERENCES

Available from: <http://www.topendsports.com>.
Wikipedia – Volley Ball and Basket Ball.