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A Study On Thoracic Kyphosis Postural Deformity Of High School Boys In Mysore City.

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Abstract:

There has been limited research regarding postural changer and its effect on postural deformity in school going children's. The subjects for the study were adolescent boys studying between 8th to 10th classes. 30 subjects studying at a private school were selected through simple random sampling in purposive sampling technique for the present investigation. These 30 subjects were placed in single experimental group. all the subjects selected for this study were tested twice prior to treatment (pre-test) and at the conclusion of treatment (post-test) with a time gap of 22 weeks. The researcher was measured thoracic kyphosis with the help of trained examiner by the method of Milne and Lauder (1974). To make the subjects invole themselves in the present study an orientation class was arranged. The researcher has explained the purpose of the study to the subjects and their part in the study. This experimental group did not take type of treatment or not applied interventions to correct faulty posture. Twenty two weeks of observation was planned. Angle of the kyphosis was recorded twice that is prior to commencement of study period and after the completion of the twenty two weeks. In this single group experimental design, the pre and post test scores on flexicurve ruler angle was compared with the help of paried sample 't' test. There were significant differences in scoliosis postural deformity angle during pre test and post test of single experimental group was 57.23 and 62.93angle in form of increased respectively, the mean difference of 5.7 shows that after completion of study period angle of kyphosis was found to be increased significantly as compared to what it was before the commencement of study period. The 't' values in case of experimental group was -3.700 . It indicates and observed that there was significant difference in Kyphosis postural deformity of experimental groups during post test situations. On the basis of the present investigation it can be concluded that the mean values of kyposis significantly increased in single experimental group. And also the study indicated that the without treat the faulty posture can be increased the angle of deformity and also can't cure, control and prevent postural deformities. Then, this study recommended that, the concern persons have to take care of it.

Key words: posture, deformity.

Introduction

Posture is described has the relative arrangement of the parts of the body [AAOS, 1947]. We have seen that the term posture, with its psychological, kinesiological, biomechanical, and physiological implications, represents a whole conglomeration of domains. This complexity has provoked much disagreement about the definition, diagnosis, and means of treating various disorders (Gur, 1998a). The professional literature on the subject is brimming with subjective "definitions" of normal posture ("good" posture, "bad" posture). Good posture requires the alignment of the different weight-bearing segments of the body upon each other.

Numerous authors have described the ideal position of the body, including Kendall et al. (1952), Woodhull, et al, (1985). There is general agreement that, in standing, the centre of gravity of the body lies at 55-57% of the height of the person above the ground or at approximately the level of the vertebral body of S2. The line of weight is perpendicular to the centre of gravity. The importance of this line lies in its relation to the transverse axes of rotation of the joints of the vertebrae and the lower limbs, the body tending to fall anteriorly, or posteriorly, due to, gravitational forces according to whether the line of gravity passes in front of or behind this axis, respectively.

Postural deviations commonly begin in childhood but can also be brought on by an imbalance in the strength of opposing muscle groups. If they are left undetected, they will generally lead to bigger problems. Head tilt, shoulder tilt, hip tilt and forward head are common signals of postural deviation in adults. These can lead to shoulder humps and a hunched-over posture in older adults. The underlying concern of posture can lead to balance, muscle pain and skeletal stress. Some studies have shown that over 97% of adults have some type of postural deformations that should be corrected. According to March of Dimes foundations that about 60% of birth defects have unknown causes. Adolescent boys and girls the ages of 10 and 15 are at greater risk of Scheuermann's kyphosis (Michelle Zehr, 2011). Biomechanical changes that occur in the spine from postural malalignment arise primarily from the alterations of movements produced by the new posture (Norkin & Levangie, 1985). In standing, the main stresses caused by an abnormality in the sagittal plane are increases in shear (A strain produced by pressure in the structure of a substance, when its layers are laterally shifted in relation to each other) and compressive stresses. For e.g. Normally the primary function of the apophyseal joints is to guide movement, in hyperlordosis they may have to resist up to one-sixth of the compressive force of the spine (Adams & Hutton, 1983). Shear stresses at the anterior of the annulus fibrosis also increase with hyperlordosis (Farfan, 1978). Postural deviations, including forward head, forward shoulders (scapular protraction), humeral internal rotation, and increased thoracic kyphosis, have been implicated in the development of shoulder pain. posture can classify into the seven most common types of postural deviations are Kyphosis (Protracted Shoulder Girdle) Posture, Lordosis (Anterior Pelvic Tilt), Scoliosis Posture, Sway Back Posture, Forward Head Posture, Flat back Posture, Military Posture. (Kendall et al. 1952, Kisner & Colby, 1990 & Wellsphere.com, 2009)

Kyphosis is the name given to a postural disorder in which the curve of the thoracic vertebrae is exaggerated and the shoulders and head assume a forward tilt. It is an unbalanced posture that can cause neck and back pain. In the posture of kyphosis the head is pushed forward, in front of the gravitational center. The term "kyphosis" usually refers to an exaggerated rounding, more than 50 degrees, accentuating the thoracic curve. This deformity is also called round back or hunchback. According to the Maryland spine Center (MSC), these conditions can develop from unhealthy posture habits, bone and joint degeneration and spinal deformity. Gradually Kyphosis is the most common postural abnormality and is frequently found in people who work at the computer for a living, extremely tall people, obese women and women with larger breasts. It is a pronounced curvature of the upper thoracic spine, which is usually easily treatable with exercises and stretching. Severe cases diagnosed as Scheuermann's Kyphosis create a noticeable hump in the upper back. Other common indications of this condition are a shortening of the thoracic muscles and weakness of the upper back muscles and scapular adductors. Exaggerated curves are also likely to develop in the cervical and lumbar spine areas as compensatory processes to facilitate better body functioning. Other characteristics of this disorder are shallow breathing and low body awareness. However, a mild case of kyphosis affects the appearance of the posture and causes back and shoulder inflexibility. If you do not counteract these positions of daily life, kyphosis may worsen over time. If left untreated it can result in a permanent deformity of the spine known as a hunch back. Exercises that open the pectoral muscles and the intercostals muscles and that strengthen the upper back will help correct kyphosis (Gill Solberg, 2005. Mayo Clinic Staff & Andrea Cespedes).

Objectives of the study

To examine the thoracic kyphosis angles. These findings can provide the preliminary data for developing a program intended to maintain the thoracic curve in high school boys between 13 to 15 years of Mysore city. To provide information to parents and teachers about the problem of bad posture.

Hypotheses

It was hypothesized that there will be significant difference in angle of deformity of high school boys in Mysore city.

Methodology

The subjects for the study were adolescent boys studying in 8th to 10th standard and their age ranged between 13 to 15 years. Total sixty (30) subjects studying at a private and government school at Mysore city were selected through simple random sampling technique for the present investigation. All the subjects selected for this study were tested twice prior to commencement of study period and after the completion of 22 weeks of without any interventions.

The details on postural deformity and testing tools is given in table - 1.

Sl. No.	Postural deformity	Testing tool	Equipment & materials	Units of measurements
1	Kyphosis	Flexicurve ruler measurement test	Flexicurve ruler	Centimeter

A flexible ruler (flexi-curve) was used to measure the degree of kyphosis in the thoracic (Lindsey (2007), Norma J). The flexible ruler is a flexible piece of lead covered in durable plastic that can be molded to the contour of the spine to measure curves in the sagittal plane. The researcher was measured thoracic kyphosis with the help of trained examiner by the method of Milne and Lauder (1974). To calculate the flexi-curve kyphosis index, the apex kyphosis height (B) was divided by the length of the entire thoracic curve (E) and the multiplied by 100 ($B/E \times 100$). The flexicurve angle or theta (Θ) was calculated using lines drawn perpendicular to the short sides of the triangle inscribed by the thoracic curve. Theta equals $\arctan(B/X_1) + \arctan(B/X_2)$ index and angle to find out.

Procedure:

To make the subjects involve themselves in the present study an orientation class was arranged. The researcher has explained the purpose of the study to the subjects and their part in the study. This experimental group did not take type of treatment or not applied interventions to correct faulty posture. Twenty two weeks of observation was planned. Angle of the kyphosis was recorded twice that is prior to commencement of study period and after the completion of the twenty two weeks. In this single group experimental design, the pre and post test scores on flexicurve ruler angle was compared with the help of paired sample 't' test. The result depicted in table – 2

Results

The results on kyphosis postural deformity during pre and post test situations of experimental groups are given in table 2.

Table 2. Comparison of pre and post mean value Of experimental groups with kyphosis angle and their significance difference.

Groups		Mean	N	Std. Deviation	Std. Error Mean	r	t	df	sig. (2 tailed)	95% Confidence Interval of the Difference	
										lower	upper
Kyphosis	Pre	57.23	30	9.576	1.540	0.492	-3.700	29	.001	-8.850	-2.550
	Post	62.93	30	6.023							

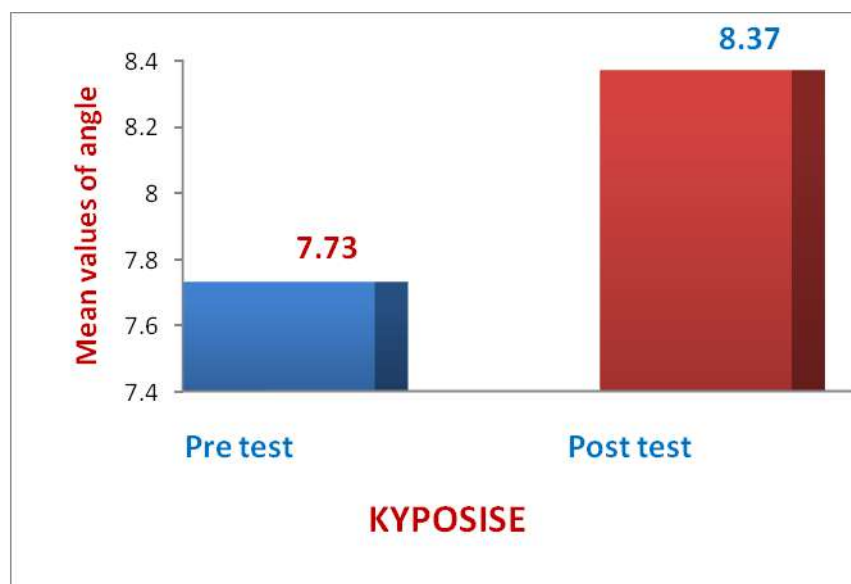


Figure 1.

Comparison of pre and post mean value Of single experimental groups with kyphosis angle and their significance difference

The figure presented in table 2 depicts mean of kyphosis on pre and post test of experimental group was 57.23 and 62.93 Angle of deformity respectively. The mean difference of 5.7 shows that after completion of study period angle of kyphosis was found to be increased significantly as compared to what it was before the commencement of study period. The 't' values in case of experimental group was -3.700 . It indicates that there was significant difference in Kyphosis postural deformity of experimental groups. It was observed that the Kyphosis postural deformity angle was not improved in experimental group during post test situations.

The results make it clear that the Kyphosis postural deformity in experimental group increased due to absence of any type of intervention for twenty two (22) weeks. (Single Experimental group, $t=-3.700$, $df=29$, $r=0.492$, $p<.05$).

Discussion

The result indicates absence of any type of intervention program in increasing the angle of kyphosis in high school boys of Mysore city. Studies on effects of corrective exercises in reducing postural deformities can be used as remedial measure to cure, control and prevent postural deformities. Postural alteration presented in this study was the increase of the thoracic hyperkyphosis. This increase is usually related to periods of rapid growth (Warner WC, 1996) and it can occur in subjects during the growth spurt of puberty, which is very important in boys, since there is a tendency to adopt this posture as a manner of hiding biological development. Since puberty can occur earlier for some people, perhaps this is the reason why increased thoracic hyperkyphosis was found in our study. Pinho and Duarte (1995), found similar values of thoracic hyperkyphosis among the ages (9% at 7 years, 17% at 8, and 10% at 9 and 10 years of age). Some authors have related scapular instability to the occurrence of thoracic hyperkyphosis (Bankoff ADP 1986, Ferronato A, 1998). In the view of above, result of the present study are without consistent with any type of intervention or treatment or corrective posture techniques poor posture has continually increased in rapid form.

Conclusion

On the basis of the present investigation it can be concluded that the mean values of kyphosis significantly increased in single experimental group. And also the study indicated that the without treat the faulty posture can be increased the angle of deformity and also can't cure, control and prevent postural deformities. Then, this study recommended that, the concern persons have to take care of it.

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Effects Of Selected Yogasana On Scoliosis Deformity Of High School Boys Between 13 To 15 Years Of Mysore City

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Abstract:

yoga has been investigated in relation to a variety of topics with focus in the reduction of symptoms of various illnesses and disorders. There has been limited research regarding yoga's effect on postural deformity in school going children's. The subjects for the study were adolescent boys studying between 8th to 10th classes. 60 subjects studying at a private school were selected through simple random sampling in purposive sampling technique for the present investigation. 30 subjects each were placed in treatment as well as control group all the subjects selected for this study were tested twice prior to treatment (pre-test) and at the conclusion of treatment (post-test) with a time gap of 22 weeks. Adam's forward bending test and scoliometre tools were used in the present investigation. Treatment in the form of selected yogic asana was given to selected subjects in the specified treatment group. Twenty two weeks of training included systematic yogasana for five days in a week. In order to examine the hypotheses of the study paired samples 't' test was used. There were significant differences in scoliosis postural deformity angle during pre test and post test of experimental group was 7.83° and 2.13° angle in form of decreasing respectively, whereas the differences in mean 7.73° and 8.37° angle in form of increased, was significant in control group during pre test and post test situations. On the basis of the present investigation it can be concluded that the scoliosis postural deformity significantly corrected in adolescent boys following yoga training.

Key words: posture, deformity, yoga.

Introduction

Yoga is a psycho-somatic-spiritual discipline for achieving union & harmony between our mind, body and soul and the ultimate union of our individual consciousness with the Universal consciousness. Yoga is a mind-body technique, which involves relaxation; meditation and a set of physical exercises performed in synchronize with breathing. "In fact, it is an effective therapeutic tool for many physical, psychological and mental disorders". Being holistic, it is the best means for achieving physical, mental, social and spiritual well being of the practitioners.

Good posture is that state of muscular and skeletal balance which protects the supporting structures of the body against injury or progressive deformity, irrespective of attitude (erect, lying, and stooping) in which these structures are working or resting. Under such conditions the muscles will function most efficiently and the optimum conditions are afforded for the thoracic and abdominal organs (AAOS, 1947). There are many versions of postural deviations, however, and each will need to be addressed in a different way. So first the researcher has need to test for the most common problems and then select exercises and stretches that can take on the issue.

Michelle Zehr, Bell Russell & Jamie Mastrangelo are professional writers says that Scoliosis is a lateral curve that can be found in either the lower lumbar spine, the upper thoracic spine or both which the spine forms an “S/C” curve and rotates toward the concave side of the S, that results in improper alignment of the spine, shoulders and neck. Visible symptoms may include uneven shoulder height or a non-vertical neck angle. Scoliosis is often hereditary and affects approximately two percent (2%) of the population. It is a serious spinal condition that can be degenerative and cause major health problems. The American Chiropractic Association notes that scoliosis may cause back pain or progressively impinge on internal organ function. The majority of scoliosis cases are mild (less than 20-degree curve), however, and don't pose serious threats to healthy posture. Scoliosis is treatable, but treatment programs depend on the individual and should always be conducted by a health care professional. The practice of yoga can be very helpful to people with scoliosis. Through yoga, you can become aware of imbalances in the body, improve mobility and flexibility, and relieve chronic pressure and pain.

Objectives of the study

The main objective of the study is to assess the efficacy of yoga exercise on scoliosis in school boys

Hypotheses

It was hypothesized that after imparting yoga exercise program to selected subjects, the mean angle of scoliosis will decrease significantly as compared to what it was before the commencement of study period.

Methodology

The subjects for the study were adolescent boys studying in 8th to 10th standard and their age ranged between 13 to 15 years. Total sixty (60) subjects studying at a private school at Mysore were selected through purposive sampling technique for the present investigation. 30 subjects each were placed in treatment as well as control group. All the subjects selected for this study were tested twice prior to treatment (pre-test) and at the conclusion of treatment (post-test) with a time gap of 22 weeks. The details on postural deformity and testing tools is given in table - 1.

Sl. No.	Postural deformity	Testing tool	Equipment & materials	Units of measurements
1	Scoliosis	Adam's forward bend test	Scoliometer	Degree

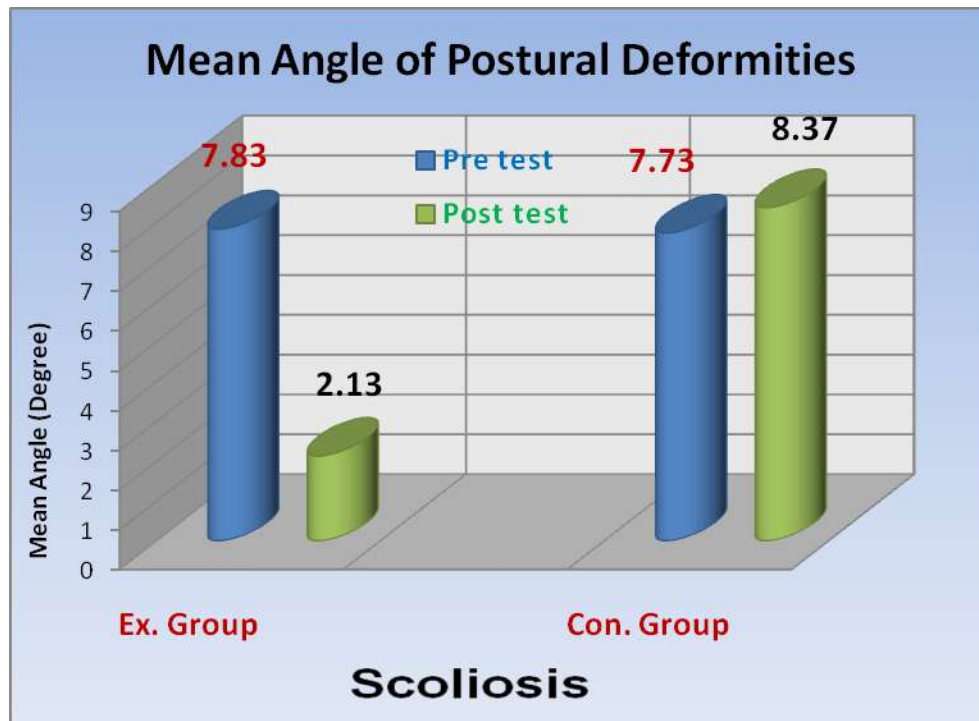
Treatment in the form of yogic asana along with Pranayama was given to selected subjects in the specified treatment group. Control group did not take part in any form of physical training and observed normal daily routine. Twenty two weeks of training included systematic yoga training for five days in a week. The training was scheduled in the morning 60 minutes for pre planned treatment. Warm-up and warm-down also included within the minutes. In order to examine the hypothesis of the study paired samples ‘t’ test was used.

Results

The results on scoliosis postural deformity during pre and post test situations of experimental and control groups are given in table 2 and respectively

Table 2. Comparison Of Pre And Post Mean Value Of Experimental Groups With Kyphosis Angle And Their Significance

Experimental Groups		Mean	N	Std. Deviation	Std. Error Mean	r	t	df	sig. (2 tailed)	95% Confidence Interval of the Difference	
										lower	upper
Scoliosis	Pre	7.83	30	2.214	0.362	0.454	15.726	29	.000	4.959	6.441
	Post	2.13	30	1.224							
Scoliosis	Pre	7.73	30	2.149	.122	.954	-5.188	29	.000	-.883	-.384
	Post	8.37		2.236							



The figure 1 presented in table, 2 depicts mean of Scoliosis on pre and post test of experimental group was 7.83 and 2.13 Angle of deformity respectively. The mean difference of 5.7 shows that after adopting yoga exercise angle of Scoliosis was found to be decreased significantly as compared to what it was before the commencement of study period. Whereas the mean of scoliosis during pre test and post test of control group was 7.73 and 8.37 respectively. The mean difference of – 0.59 shows that after post period of experiments. The 't' values in case of experimental group was 15.726 and for control group is was -5.188. It indicates that there was significant difference in Scoliosis postural deformity of both experimental and control groups. It was observed that the Scoliosis postural deformity angle was improved in the form of decreased in experimental group during post test situations. Further it was observed that the Scoliosis postural deformity increased during post test situation in control group. The results make it clear that the Scoliosis postural deformity in experimental group decreased due to practice of selected yogic asanas for twenty two (22) weeks. (Experimental group, $t= 15.726$, $df=29$, $r=.454$, $p<.05$ and Control group, $t= -5.188$, $df=29$, $r=0.954$, $p<.05$).

Discussion

Yoga can strengthen the muscles which support the spine, often allowing a decrease in the lateral curve (Miller). Clarissa Adkins and miller were recommend some yogic posture for correction of postural deformities that asana are needed to free from deformity (yoga journal 2010). Yoga for Spinal Cord problems are probably the most researched part of Yogic Science. Most Spinal Cord problems are not fatal and are musculoskeletal or associated with the Bones, Muscles, tendons, joints, and ligaments. According to studies, majority of Spinal Cord problems is caused by some form of irritation of the nerves that travels from the Spinal Cord through the bones, making the muscles to be stressed. Andrea Stanet stated that, "most of the times the types of yoga, such as Iyengar and Anusara, focus more on alignment than other traditions and may provide programs geared toward scoliosis therapy". It is also observed statistically significant decrease in degree of scoliosis.

Conclusion

On the basis of the present investigation it can be concluded that the mean values of scoliosis significantly improved in treatment group, but not in non-treatment group. And also the study indicated that the regular participation in yoga can be used as remedial measures to cure, control and prevent postural deformities.

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Abstract:

Management of high-level athletes in Chinese universities is inconsistent in terms of management systems and methods, adversely affecting the development of high-level athletes. Current research focuses on three factors: research on management status of high-level sports teams in colleges and universities, comparative studies on management of high-level athletes in China and the United States, and, research on management modes of high-level sports teams. There appears to be almost no research on future development and career planning for high-level athletes. This is a critically important problem facing China's high-level athletes, and it is imperative that the paucity of research be addressed. **Keyword:** Review; Management; High-level athletes; Chinese universities

Introduction

"High-level athletes" refers to students with athletic talents who are officially admitted to ordinary universities according to China's admission policy for high-level athletes (Zhu, Zhang, & Hu, 2016). In 1987, China's former State Education Commission issued a policy document stipulating that 51 universities qualified to recruit and train high-level athletes (State Education Commission of the People's Republic of China, 1987). By 2019, 287 universities were able to recruit high-level athletes (Education Ministry of China, 2019). Concomitant with the increase in numbers of colleges and universities enrolling high-level athletes, a variety of existing problems in high-level sports teams in colleges and universities garnered more and more attention on the part of college administrators, as well as domestic scholars. The study presented here intends to understand relevant research on management of high-level athletes, and provide guidance for further improving management of high-level athletes in Chinese universities.

Statistics of research papers

A literature search on high-level sports team athletes in Chinese universities reveals that although many scholars have considered high-level sports teams as research objects, their focus was limited to studying high-level sports teams from the perspective of: high-level athlete student resources, enrollment policies, recruitment scale, incentive system, sports performance, and training status. In the China National Knowledge Infrastructure (CNKI) database, 234 research papers were found, having a search string within the title field of "high-level athletes" AND "management" OR "high-level sports teams" AND "management". As of July 2019, there were 44 core journals among them.

Figure 1 shows that there was relatively little research on high-level athletes between 1987 and 2004, and thereafter reached its first peak in 2006, with 15 articles. A second peak was reached in 2011/2012, there being 20 and 21 articles published respectively, before the trend gradually declined. In general, research on management of high-level athletes in colleges and universities by Chinese scholars has shown a gradually increasing trend followed by a gradually decrease.

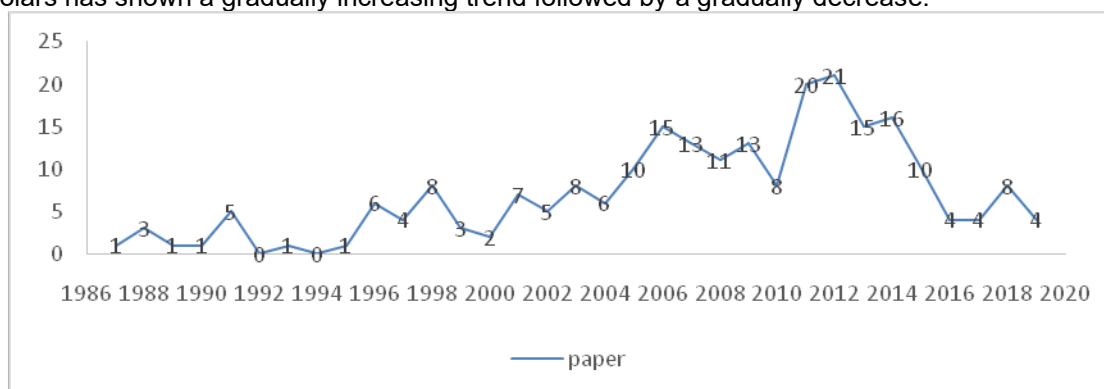


Figure 1: Annual distribution of high-level athlete management papers

Analysis of research results

From analysis, it can be seen that research on high-level athlete management systems can be divided into three factors: research on management status of high-level sports teams in colleges and universities, comparative studies on management of high-level athletes in China and the United States, and, research on management modes of high-level sports teams.

Research on the status quo of high-level athlete management

At present, the construction of high-level sports teams in colleges and universities in China is still at the exploratory stage. From existing literature, it is clear that Chinese scholars have recognized that there are management system problems, and they have tried to put forward reasonable suggestions for improving them.

Construction of high-level sports teams in colleges and universities is a systematic, complex project. Already, there are many recognized problems in the construction and management of high-level sports teams in ordinary colleges and universities. These include issues such as the tension between athlete learning and athlete training, lack of professional coaching skills, poor source selection of students for sports teams, difficulty in meeting the financial demands of team construction, and defects in management systems and methods (Kang, 2013). Scientific management may be realized and projects completed efficiently and with high quality, only by conducting detailed investigation and study on enrollment policies, arrangement of athletes' academic pursuits, student status management, sports training and competition, nutrition and recovery, coach employment, and other related issues. (Gao, Zhao, Tao, & Xie, 2009).

Comparative Study on Management of High-level Chinese and American Athletes

American university competitive sport is a world model in combining sports and education in third level institutions. Studying its core development concepts is helpful in providing useful reference for developing a combination model of sports and education in Chinese universities (Xu & Xie, 2016). As a result, some Chinese scholars have compared management of high-level athletes in Chinese universities with management of college athletes in the United States. They did this in order to discover where there is insufficiency in high-level athlete management, and to seek to improve the quality of high-level athlete management in China. Wang and Ma (2006); and Ye (2016) found that there are obvious differences between China and the United States in primary high-level sports team management factors in colleges and universities. Chinese colleges and universities could learn from the successful experience and scientific management methods of American colleges and universities in order to provide a theoretical basis for reforming and developing college and university sports.

Research on high-level athlete management modes

Some scholars believe that China's current management model is outdated and relatively backward, as a result, different management models have been proposed according to differing theories.

Ouyang (2014) applied both comprehensive matrix theory, and dynamic optimization management system model, in an attempt to regulate high-level sports teams in "science" (cultural studies) and "industry" (exercise training), so as to optimize quality and strengthen management of high-level college sports teams, while simultaneously exploring the construction of a new mode. Hou, Xiao, and Ren (2007) and Liao and Zheng (2013), using WSR theory in conjunction with an interpretation of current Chinese university high-level sports team management, constructed a three-dimensional WSR high-level sports team management model with physical hardware facilities (W), rules and regulations (S) and human resources system (R). Dou and Liu (2015) and Zhao (2018) analyzed problems in high-level sports team management in colleges and universities, and suggested a high-level sports team cooperative management mode, aspiring to resolve and effectively improve various conflicts in high-level sports team management.

Conclusion

In this research, it was found that the organization of Chinese university sports teams is quite flawed, and that management mechanisms, ideas and methods for sports teams are relatively outdated and backward. This hinders the development of high-level sports teams in Chinese universities. At present, research on high-level athlete management in Chinese universities is mainly focused on problem-solving. It appears that Chinese scholars have done little research on future development directions and high-level athlete career planning. These are precisely the two most important problems faced by Chinese high-level athletes. It is imperative that these weaknesses be rectified as a matter of urgent importance.

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A Study On Physical Fitness Among The Different Arch Group Of Children

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Abstract

The human's foot is the primary interface between the ground and the body during standing or walking. For that purpose of the study was to determine the physical fitness of the groups separately based on foot arch. Three hundred School going children equally divided on One hundred fifty Boys and One hundred fifty School Girls were randomly taken from various schools of north 24 parganas of West Bengal. Further the total number of the subjects were divided into four groups based on their foot arch i.e. High, Normal, Low and Mixed arch groups. The age range of the subjects was 9-12 years. Foot arch were determined through measuring the static foot print on graph paper and applies the arch index methods followed by the method of (Cavanagh PR. 1987). The fitness parameter i.e. Speed was measured by 50 yards dash in seconds. Agility measured by 4x10 yards shuttle run in seconds. Explosive leg strength was measured by standing broad jump in meter, Flexibility was measure by ankle extension (Planter flexion) test in cm, Static Balance was measured by Stock Stand test in seconds and Dynamic Balance to be measured by Modified Bass test in seconds. Mean S.D. and ANOVA was calculated for analysis, interpretation and discussion. Excel Spread sheet and SPSS version 20 were used for all the statistical analysis and statistical significance was fixed at 0.05% level of confidence. The result shows that Mixed arch group of Girls was better than other groups. Low arch groups of the boys were worst agile than the others groups Mixed arch of girls were better in Dynamic Balance and Explosive Leg Strength than other group. In flexibility and Static Balance among the different arch groups of the subjects was same or less equal.**KEY WORDS:** Physical fitness, Foot arch, Preadolescent school children

Introduction

The human's foot is the primary interface between the ground and the body during standing or walking. It is the strongest and mechanical structure containing of human body. Some abnormal foot structure and mechanics may increase the risk for injury of an individual and an important factor to improve the sports performance. The foot's structure is relatively unique to each individual and also differs within the same individual from one side to other side. Jensen (2007) stated our feet are the foundation for entire body. They must be able to properly support our body; allow stand, walk, run and jump and absorb damaging shock that enters your body every time your heel hits the ground. Every athlete deals with structural defects, many of which start in the feet. The concept of Arch Index was first described by Cavanagah et al. (1987) as the ratio of the area of the middle third of the foot to the entire foot area excluding the toes. An arch index of less than 0.21 has been said to be indicative of a cavus foot, while it greater than 0.26 is indicative of planus foot whereas Arch Index between 0.21~0.26 corroborates normal arch height.

Physical fitness is the major important factor for sports performance. It enhances the status of living, healthy life style and the ability of an individual that focuses more than one specific skill. Nowadays, performance athletes begin intense training at a very young age. Athletes use different type of fitness programme to achieve the desire goal. A well-rounded fitness programme can improved the fitness of a person to compare with the athletes in all aspects of fitness. Sports performance is proportionate of physical fitness, age, sex, growth, environment etc. In childhood stage sports performance in most discipline is a simple matter whereas the activities are fundamental. It's depends upon several independent aspects i.e. physical certainty, neuromuscular function, musculoskeletal factor, environmental condition, mental condition, psychological factor and training supports for an athletes. With such background researcher was to find out the difference on selected physical fitness among the different arch group of preadolescent school children

Purpose Of The Study

The Purpose of the Present study ware

- I. To determine the physical fitness of the groups separately based on foot arch.
- II. To compare the performance of deferent groups based on foot arch.

Methodology

One hundred fifty School going Boys ($N_1 = 150$) and One hundred fifty School going Girls ($N_2 = 150$) were randomly taken from various schools of north 24 parganas of West Bengal. Thus the total no of the subjects were ($N = 300$) three hundred only. Further the total number of the subjects were divided into four groups based on their foot arch i.e. High, Normal, Low and Mixed arch groups. The age range of the subjects was 9-12 years. Foot arch ware determined through measuring the static foot print on graph paper and applies the arch index methods followed by the method of **(Cavanagh PR. 1987)**. The fitness parameter i.e. Speed was measured by 50 yards dash in seconds. Agility measured by 4x10 yards shuttle run in seconds. Explosive leg strength was measured by standing broad jump in meter, Flexibility was measure by ankle extension (Planter flexion) test in cm, Static Balance was measured by Stock Stand test in seconds and Dynamic Balance to be measured by Modified Bass test in seconds. Mean S.D. and ANOVA was calculated for analysis, interpretation and discussion. Excel Spread sheet and SPSS version 20 were used for all the statistical analysis and statistical significance was fixed at 0.05% level of confidence.

Result & Discussion

The mean and S.D. value of the personal data of the selected subjects were presented in table no -1

TABLE-1 represents the Descriptive statistics of Personal Data of the Subjects

Groups	Age (Years)		Height (C.M.)		Weight (K.G.)	
	Mean	S. D.	Mean	S. D.	Mean	S. D.
Boys	10.86	0.63	140.70	7.24	31.99	7.76
Girls	11.04	0.63	142.37	13.43	37.85	9.38

Table-1 represent that the mean value of the Age, height and weight of Boys group was 10.86 years, 140.70 c.m., 31.99 k.g. and the variation ware 0.63 years, 7.24 c.m. and 7.76 k.g. respectively. On other hand mean value of the Age, height and weight of Girls group was 11.04 years, 142.37 c.m., 37.85 k.g and variation ware 0.63 years, 13.43 cm. 9.38 k.g. respectively.

TABLE-2 represents the Descriptive statistics of the boys Subjects

Name of the variables	Normal Arch (N=54)	Low Arch (N=34)	High Arch (N=22)	Mixed Arch (N=40)
SPEED (Sec.)	8.25±0.72	8.60±0.79	8.15±0.64	8.42±0.66
AGILITY (Sec.)	11.52±0.86	12.24±1.26	11.69±0.83	11.76±1.07
EXP (Cm.)	148.22±16.34	144.46±16.36	150.04±17.24	150.72±17.57
FLEXIBILITY (Cm.)	5.29±1.70	4.78±1.74	4.49±1.44	5.25±1.72
SB (Sec.)	11.15±6.98	12.38±5.96	10.98±6.81	12.10±7.25
DB (Score)	63.46±7.94	61.56±8.24	59.55±9.93	61.78±8.17

EXP: EXPLOSIVE LEG STRENGTH, SB: STATIC BALANCE, DB: DYNAMIC BALANCE

From the table it appears that mean value of Boys groups' speed of Normal, Low, High and mixed arch groups were 8.25, 8.60, 8.15 and 8.42 sec., agility were 11.52, 12.24, 11.69 and 11.76. Sec., explosive leg strength was 148.22, 144.46, 150.04 and 150.72 Cm. flexibility were 5.29, 4.78, 4.49 and 5.25 Cm., static balance were 11.15, 12.38, 10.98 and 12.10 Sec. Dynamic balance were 63.46, 61.56, 59.55 and 61.78 score respectively.

However, to ascertain the degree of differences among the groups the one way analysis of variance (ANOVA) technique was computed and values were found in table-3

TABLE-3 -'F' ratio for fitness variables among the different Arch groups of boys

Variable	Source of variance	Sum of Squares	Mean Square	F
SPEED	Between Groups	3.797	1.266	2.512
	Within Groups	73.560	0.504	
AGILITY	Between Groups	11.09	3.697	3.579*
	Within Groups	150.811	1.033	
EXPLOSIVE LEG STRENGTH	Between Groups	801.160	267.053	0.945
	Within Groups	41274.733	282.704	
FLEXIBILITY	Between Groups	14.013	4.671	1.658
	Within Groups	411.324	2.817	
STATIC BALANCE	Between Groups	49.297	16.432	0.354
	Within Groups	6782.167	46.453	
DYNAMIC BALANCE	Between Groups	256.756	85.585	1.218
	Within Groups	10258.238	70.262	

**significant at 0.05 level of confidence: $F_{0.05}(3, 146) = 2.66$*

From the table-3 the F value of speed of the different arch groups was 2.512, F value of explosive leg strength was 0.945, flexibility was 1.658, static balance was 0.354, and dynamic balance was 1.218 which all are not significant the table value at **(3, 146)** df was= **2.66**. But in case of agility of the different arch groups was **3.579***, which was significant the table value at **(3, 146)** df was= **2.66**. To observe the critical differences between the groups “t” test was adopted and it was presented in table-4

Table- 4- “t” table for agility from Post Hoc test among the boys groups

(I) groups	(J) groups	Mean Difference (I-J)	Std. Error	“t”
Normal (N=54)	Low (N=34)	0.72222	0.22251	3.25*
	High (N=22)	0.17268	0.25706	0.67
	Mixed (N=40)	0.23997	0.21202	1.13
Low (N=34)	High (N=22)	0.54995	0.27809	1.97
	Mixed (N=40)	0.48225	0.23708	2.03*
High (N=22)	Mixed (N=40)	0.06730	0.26997	0.25

*significant at 0.05 level of confidence: df-86, 74 & 72 =**1.99**, df-54 & 60 =**2.00**, df-92 = **1.98**

From the table- 4 it appears that the calculated ‘t’ value between Normal arch and Low Arch groups was **3.25*** and also the ‘t’ value between Low arch and Mixed Arch groups was **2.03*** which had been found a significant differences at the $t_{0.05}(2, 86)$ and $(2, 72) = 1.99$ but all others Calculated ‘t’ value had been found a not significant differences. To observe the descriptive statistics of obtained data belonging to girl’s Physical fitness of different arch groups were presented in table-5

TABLE-5 represents the Descriptive statistics of the girls Subjects

Name of the variables	Normal Arch (N=60)	Low Arch (N=37)	High Arch (N=10)	Mixed Arch (N=43)
SPEED (Sec.)	10.60±1.39	10.21±1.58	11.02±2.34	9.68±1.19
AGILITY (Sec.)	13.62±1.45	13.90±1.37	14.33±1.48	13.28±1.13
EXP (Cm.)	109±18.64	102.51±22.30	109.50±20.21	116.51±20.96
FLEXIBILITY (Cm.)	4.15±1.46	3.92±1.51	4.44±1.60	3.86±1.74
SB (Sec.)	9.58±7.48	6.39±2.61	9.92±9.59	7.92±5.69
DB (Score)	58.55±14.26	51.59±14.81	51.20±11.29	60±12.87

EXP: EXPLOSIVE LEG STRENGTH, SB: STATIC BALANCE, DB: DYNAMIC BALANCE

From the table it appears that mean value of Girls groups’ speed of Normal, Low, High and mixed arch groups were 10.60, 10.21, 11.02 and 9.68 sec., agility were 13.62, 13.90, 14.33 and 13.28 Sec., explosive leg strength was 109, 102.51, 109.50 and 116.51 Cm. flexibility were 4.15, 3.92, 4.44 and 3.86 Cm., static balance were 9.58, 6.39, 9.92 and 792 Sec. Dynamic balance were 58.55, 51.59, 51.20 and 60 score respectively.

However, to ascertain the degree of differences among the groups the one way analysis of variance (ANOVA) technique was computed and values were found in table-6

TABLE-6 -'F' ratio for fitness variables among the different Arch groups of girls

Variable	Source of variance	Sum of Squares	Mean Square	F
SPEED	Between Groups	27.092	9.031	4.225*
	Within Groups	312.061	2.135	
AGILITY	Between Groups	13.004	4.335	2.387
	Within Groups	265.071	1.816	
EXPLOSIVE LEG STRENGTH	Between Groups	3933.886	1311.295	3.164*
	Within Groups	60516.487	414.496	
FLEXIBILITY	Between Groups	4.166	1.389	0.566
	Within Groups	358.387	2.455	
STATIC BALANCE	Between Groups	265.285	88.428	1.949
	Within Groups	6625.846	45.383	
DYNAMIC BALANCE	Between Groups	1981.640	660.547	3.446*
	Within Groups	28987.693	191.697	

**significant at 0.05 level of confidence: $F_{0.05}(3, 146) = 2.66$*

From the table-6 the F value of agility of the different arch groups was 2.387, flexibility was 0.566, static balance was 1.949 which all was not significant the table value at **(3, 146)** df was= **2.66**. But in case of F value of speed of the different arch groups was **4.225***, F value of explosive leg strength was **3.164*** and F value of dynamic balance was **3.446*** which all was significant the table value at **(3, 146)** df was= **2.66**. To observe the critical differences between the groups "t" test was adopted and it was presented in table-7

Table- 7- "t" table for speed from Post Hoc test among the girls groups

(I) groups	(J) groups	Mean Difference (I-J)	Std. Error	"t"
Normal (N=60)	Low (N=37)	0.39066	0.30560	1.28
	High (N=10)	0.42150	0.49936	0.84
	Mixed (N=43)	0.91617	0.29211	3.13*
Low (N=37)	High (N=10)	0.81216	0.52106	1.55
	Mixed (N=43)	0.52511	0.32783	1.60
High (N=10)	Mixed (N=43)	1.33767	0.51327	2.60*

significant at 0.05 level of confidence: df-95 & 78 =1.99**, df-68 & 51 =**2.00**, df-101 = **1.98**, df-45 =**2.00***

From the table- 7 it appears that the calculated 't' value between Normal arch and Mixed Arch groups was **3.13*** and also the 't' value between High arch and Mixed Arch groups was **2.60*** which had been found a significant differences at the $t_{0.05}(2, 101)=1.98$ and $(2, 51) = 2.00$ but all others Calculated 't' value had been found a not significant differences.

Table- 8- “t” table for explosive leg strength from Post Hoc test among the girls groups

(I) groups	(J) groups	Mean Difference (I-J)	Std. Error	“t”
Normal (N=60)	Low (N=37)	6.48649	4.25569	1.52
	High (N=10)	0.50000	6.95399	0.07
	Mixed (N=43)	7.51163	4.06789	1.85
Low (N=37)	High (N=10)	6.98649	7.25619	0.96
	Mixed (N=43)	13.99811	4.56531	3.07*
High (N=10)	Mixed (N=43)	7.01163	7.14766	0.98

*significant at 0.05 level of confidence: df-95 & 78 = **1.99**, df-68 & 51 = **2.00**, df-101 = **1.98**, df-45 = **2.00**

From the table- 8 represent that the calculated ‘t’ value between Low arch and Mixed Arch groups was **3.07*** which had been found a significant differences at the $t_{0.05}$ (2, 78)=1.99 but all others Calculated ‘t’ value had been found a not significant differences.

Table- 9- “t” table for dynamic balance from Post Hoc test among the girls groups

(I) groups	(J) groups	Mean Difference (I-J)	Std. Error	“t”
Normal (N=60)	Low (N=37)	7.06351	2.89412	2.44*
	High (N=10)	7.35000	4.72912	1.55
	Mixed (N=43)	1.45000	2.76641	0.52
Low (N=37)	High (N=10)	0.28649	4.93464	0.06
	Mixed (N=43)	8.51351	3.10468	2.74*
High (N=10)	Mixed (N=43)	8.80000	4.86083	1.81

*significant at 0.05 level of confidence: df-95 & 78 = **1.99**, df-68 & 51 = **2.00**, df-101 = **1.98**, df-45 = **2.00**

From the table- 9it appears that the calculated ‘t’ value between Normal arch and Low Arch groups was **2.44*** and also the ‘t’ value between Low arch and Mixed Arch groups was **2.74*** which had been found a significant differences at the $t_{0.05}$ (2, 95) and (2, 78)=1.99 but remains Calculated ‘t’ value had been found a not significant differences. The findings of the present study reveals may be due to the fact that the subjects own endowment factors and their life style towards sports. These subjects played some kind of recreational and traditional games of their leisure time. The findings of the present study are supported by the findings of these researchers. **Kumar, Johnson & Reddy (2014)** found that the normal foot arch index group was significantly better than the low and high foot arch index groups in speed and high arch foot index group was significantly better than low foot arch index group. But **Roohi, Hedayati and Aghayari (2013)** reported that there were not significant differences in speed records between groups. **Lizis, Posadzki & Smith (2010)** observed that Arch heights were not significantly related to explosive muscle strength. Arch measurement was ineffective in accounting for the observed variability in the explosive strength among young adults. But **Murley, Menz and Landrof (2009)** observed that the lower limb muscle function is affected by foot posture.

The findings of the study indicate sport specific adaptation or less training of the ankle dorsi-flexors; prospective data are required to elucidate the tendency for pes cavus in gymnasts, for whom stabilization of the foot is a priority (**Aydog, Ozçakar, Tetik, Demirel, Hasçelik & Doral 2005**). **Roohi, Hedayati and Aghayari (2013)** also reported that there were significant differences in agility and static balance records but not significant differences in dynamic balance records between groups. However, owing to presence of a plenty of controversies suggests more works in this domain.

Conclusion

From the above result and discussion of the study the following conclusion were drawn.

- ❖ Speed of Boys was same or less equal among the group but In Girls subjects mixed arch group was better than other groups.
- ❖ Low arch groups of the boys were worst agile than the others groups but Girls was same or less equal agile among the group.
- ❖ In flexibility and Static Balance among the different arch groups of the both subjects was same or less equal.
- ❖ Dynamic Balance and Explosive Leg Strength among the different arch groups of Boys subjects was same or less equal. In Mixed arch of girls group were better than other group.

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Level of Core Competencies of Directors, Staff Service-Based HRM Practices and Member Retention Behaviors of Golf Clubs

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Abstract

Golf is a popular sport worldwide, yet little work has been done to identify and explain contemporary Management competencies related to Golf managers. This study explored the current level of Director competency service-based practices and customer retention behavior among the Malaysian Golf Clubs to define their contributions as important components for successful management practices. Questionnaires were distributed among both staff and members of 34 Golf clubs. Results showed that 97.1% of respondents were male, 46.9% had a bachelor's degree, followed by diploma. The majority of directors had a salary of over \$60,000 and 32.4% had a work experience of more than 20 years. The majority of staff were non-customer-contact and aged between 30 to 40 years. The majority of customers were male and 30 to 40 years old. The majority of directors had the skill of legality/risk management with the lowest mean in the skill of Philosophy/Sport Science. The highest overall mean in customers belonged to intention to renew subscale and lowest mean was observed for member involvement. The level of director competencies was less than the moderate, the level of HRM practices of staff was above moderate and the level of customer retention behavior was above the moderate level.

Key words: Golf, Human Resource Management, Directors, Staff, Member Retention

Introduction

Nowadays, Golf is one of the most popular leisure sports, which have grown into an enormous business in Asia. Golf has evolved into a major industry since the game was first played in the early 1400s. Since 1994, Golf practice has grown 75% as stated by Kelly & Freysinger (2000).

In the context of high leadership competencies, the predictors of quality are namely supplier quality management, customer focus, employee involvement, and continuous improvement. In corporations with low leadership competencies, the predictors of quality are innovation, customer focus, and top management commitment (Das et al., 2011). Specifically, the ability to efficiently compete in the worldwide marketplace is reliant on recognizing and upholding an acceptable number of Qualified managers (Harvey et al., 2002; McKenna, 1998; Sinkovics & Deans, 2004).

The most common denominator in every institution is its human resources. Without effective and well-trained Human Resources, no matter how sophisticated or expensive the facilities or the premise, other resources have little value to the organizations. Sport organizations are therefore closely dependent on human Resources to succeed, because most of them are service-oriented (Doherty & Chelladurai, 1999).

It is important that club staff have knowledge in Support at Work; the physical aspects of organization and workplace environment that potentially hinder or facilitate employees' effort in accomplishing the given tasks. Also, they should get adequate training and follow a reward system, have the ability to supervise and receive appraisal upon good performance. Also, their satisfaction has great impact on the success of that club and increased satisfaction increases customers' loyalty (Prayag et al., 2017). This study thus ventured on to explore the current level of Director competency service-based (HRM) practices and customer retention behavior among the Malaysian Golf Clubs in order to define its contribution as an important component for successful management practices.

Methodology

The target population and unit of analysis consisted of all Malaysian Golf Clubs affiliated under Malaysia Golf Association (MGA). A total 200 questionnaires for each staff and members were distributed, 196 questionnaires returned for staff, which 25 of them were not completed also 183 customer questionnaires were returned, in which 12 of them were not filled out either. To account for some possible complications that may occur throughout the research, the sample size as calculated above was increased 20%. The questionnaires were distributed among both staff and member who were selected randomly among 34 Golf clubs.

This study employed three separate questionnaires as faced-based (online) self-completion survey methods were concerned to conduct the study. In order to get insight on the directors' perception on Management competencies, the instrument entitled "the Competencies of Golf Course Directors (CGCD)" was used Choi (2005). It consists of two sections: demographic Information and competencies, in which the original questionnaire included 99 items but were reduced to 76 items after factor analysis consist of two main components (Golf operation competencies and client care development competencies).

In order to measure the employers' service-based practices, it was necessary to adopt a questionnaire previously developed and validated in Malaysia, in order to ensure the validity of the questionnaire, and so HRM practices of staff research survey was used (Prayag, et al., 2017). The questionnaire consisted of a section including items questioning the perceptions of respondents about HRM practices including performance appraisals, training, and their respective support at work, supervisory assistance and reward system.

The third instrument that was used in this study was the Member Retention Behavior Research Survey that was designed to evaluate the customer retention behavior and measure its success rate Alexander (2015). In this study, three different Likert scales were used according to the original questionnaires. Golfers were asked to state their level of agreement or disagreement with each item based on a 7-point Likert. Collected data were coded, computed and analysis was carried out with the SPSS (Version 22.0).

Results

Total 97.1% of the directors were male and the majority aged between 50 to 54 years (44.1%), followed by age over 59 years (17.6%). Regarding the education, 46.9% had a bachelor's degree, followed by diploma (28.1%). The frequency distribution for the annual salary indicated that the highest frequency belonged to directors with a salary over \$60,000 (50%) and 32.4% had a work experience of more than 20 years.

The analysis of the staff profile showed the non-customer-contact (56.1%) were higher than the customer-contact service (43.9%). With regards to the staff age, the highest percentages were aged between 30 to 40 years (53.2%), followed by the age of less than 30 years (40.4%). Overall, 52.6 % of the staff were female and 47.4% were male. 61.4% of the respondents were married, and 58.5% had a tertiary level. The highest frequency of work length belonged to the staff with less than 5 years (54.4%), and 68.4% had a salary over RM 2,000 per month.

77.8% of the customers were male and 83.6% were married. The majority aged between 30 to 40 (64.9%), followed by the age less than 30 years (26.3%). 52.6% had a bachelor degree, followed by diploma (32.2%). For the type of membership, the highest frequency belonged to the costumers in Golf (68.4%).

The highest overall mean of director competencies belonged to the legality/ risk management subscale $M=3.163$ and the lowest mean was observed for the Philosophy/ Sport Science ($M=2.49$). Based on these results, the overall mean of all subscales was less than 3 (the median of scale), which shows that the level of director competencies was less than moderate (Figure 1).

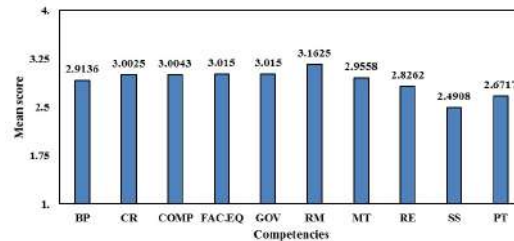


Figure 1: Level of competencies of Golf course directors.

BP: Business procedures, CR: Communications/ public relations, COMP: Computer skills, FAC.EQ: Facilities/ Equipment management, GOV: Governance, RM: Legality/ risk management, MT: Management techniques, RE: Research/evaluation, SS: Philosophy/ sport science, PT: Programming techniques/ event management

The highest overall mean belonged to Training Subscale $M=4.41$ and lowest mean was observed for support at work ($M=4.104$). Based on these results, the overall mean of all subscales was above 3.5 (the median of scale), which shows that the level of HRM practices of staff were above moderate level (Figure 2).

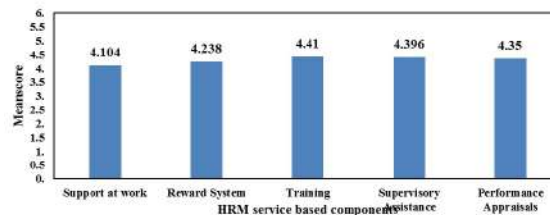


Figure 2: Level of HRM Practices of Staff.

The highest overall mean belonged to intention to renew subscale $M=5.69$ and lowest mean was observed for member involvement ($M=4.50$). Based on these results, the overall mean of all subscales was above 4 (the median of scale) which shows that the level of customer retention behavior was above moderate level (Figure 3).

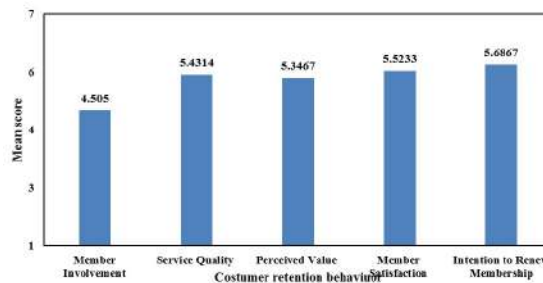


Figure 3: Level of Customer Retention Behavior.

Discussion

In this study, the researcher embarked on an exciting journey to analyze and discover the level of GolfManagement competencies at Golf clubs across the country in Malaysia. The researcher initially began with brainstorming a number of research questions and later commenced formulating those research questions into seven null-hypotheses.

One of the key implications of this research is how improvements on the management level would have resounding and long-term effect on the reputation of the sport and a promising effect on the costumer attainment that allows a sport to grow in both depths, in terms of customer loyalty, as well as length in terms of scope. Golf is unfortunately still a restricted sport limited to a constraint group of people that belong to a very diminished demographic part of the population and that can create difficulty for the growth of the sport among other demographic groups in the population. The researcher believes that one of the most immediate implications of such a research is how the results would help improve management understanding of Golf courses and in turn more Golf players and an inevitable expansion of the sport among other demographic portions of the population.

Sport organizations, such as Golf, are therefore closely dependent on Human Resources to succeed, because most of them are service-oriented. Therefore, it is a formidable force to be reckon and vital to understand that leadership competencies are the abilities, skills, knowledge, and qualities that leaders require to perform their jobs and roles proficiently. Management is the key concept and so leaders have vital roles namely aligning people, setting a direction and inspiring individuals (Das, et al.,2011).

Conclusion

Golf club managers should evolve continually to manage changes as well as hold several skills in Golf, technical aspects, Human Resources, and business operations, including budgeting, marketing and financial management. Tourism Malaysia has promoted this as one of the income revenues for Malaysia's economy. Therefore, it is vital for every Golf Club to equip these membership programs and climb their operations to a very high standard. Through this quality management, Malaysia will maintain the highest management standard in the Golfing world.

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Incidence and jeopardize factors of knee injury in the case of male volleyball players in Ethiopia.

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Abstract

Background: Volleyball is one of the most widely played sports in addition to football and basketball. International de Volley-Ball Federation (FIVB) represents about 800 million players in approximately in the world played volleyball. While a large body of research has been conducted regarding the nature and prevalence of volleyball injuries internationally, but not conducted in Ethiopia broadly. **Objective:** the aim of this study was to determine the prevalence of knee injuries and its associated risk factors on volleyball players of a club in Wollo Anbasal and Tana Bahir-Dar in the season of 2014-2016 G.C. **Methods:** Descriptive survey study was used. For this study all players and coaches was included on the two selected clubs (20 volleyball players and 2 coaches). A self-administered questions and observation were used. The collected data were taken and analyzed by means of the Statistical Package for Social Science version 16.0. The associations between variables were evaluated by means of the chi-square test. The results are displayed using table and figures. **Results:** response rate of 100% was obtained, 80% of the volleyball players experienced with one or more injuries in the season, 26 injuries occurred on the seasons and the rate were 1.3 per player. Among the injured players knee (34.6%) injuries. Players in the left and right front row were more exposed to injury at the time of spiking & blocking, higher injury occurred due to contact with players and wrong landing. Most injury occurred during the 3rd and 4th set of the game. **Conclusion-** Knee injuries were the most common types of injuries occurred to players. Above half of the injured players were not used kneepads. Playing court also increase the prevalence of injury. Players were not getting access of water during match & training, and physiotherapy services were not functional in the club due to absence of physiotherapists. Finally most injuries were occurred due to extrinsic factors. **Keywords-**prevalence, Injury, volleyball

Background

Volleyball is one of the most widely played sports in addition to football and basketball. It has become a very popular sport globally over the last 30 years. The International Federation of Volleyball represents about 800 million people played in the world (Stasinopoulos, 2004; Verhagen *et al.*, 2004). Volleyball can be a very active sport that can provide an excellent level of aerobic and healthy exercise. There are difficult movements that need to be achieved while playing volleyball. For example, volleyball players have the best vertical jump ability compared to any other sports. Vertical jumping is a frequent movement required in volleyball. Due to the huge forces involved in vertical jumping and other movements in volleyball, it will expect that injuries would be happening. Injuries in sport were common due to contact with player, ground, objects, and other reasons such as pressure, overuse, and falls. A large body of research has been conducted regarding the nature and prevalence of *knee* injuries internationally. But there was no related research in Ethiopia in this case. (Davies, 2002; Verhagen *et al.*, 2004, Agustsson *et al.*, 2006).

Statement of the problem

Due to injury, players restricted from participation for one or more days from training and games, clubs loose points from games. If this problem will not be resolved, the players can't play permanently, will be affect with chronic.

Research questions

To what extent knee injuries happened to male volleyball players related with volleyball sport in the selected study clubs? What are the intrinsic and extrinsic factors associated with injury occurrence among volleyball players in the last year season?

General objective

The primary aim of this study was to determine the prevalence and associated risk factors of injuries that occurred to the selected volleyball club players related with volleyball sport in the season of 2014- 2016 G.C.

Specific objectives of this study:-

- To determine the prevalence of knee injuries related with volleyball sport
- To identify the intrinsic and extrinsic factors associated with the injuries experienced among those players in a volleyball season.

Significance of the study

The significance of this study is to create awareness for coaches, players, physiotherapists, other clubs and sport commission office about the causes of knee injury related to volleyball, to give information about the prevalence of injury related to volleyball in the selected and other premier league clubs, give attention to fulfill the first aid materials and used to springboard or starting point of other researcher.

Delimitation of the study

The study was delimited to assess the prevalence of knee injuries related with volleyball sport. It was also focused on identifying the causes of injury.

Study design

The purpose of this study was to assess the prevalence and associated risk factors of knee injury related to volleyball. To address the mentioned purpose a cross-sectional survey design was employed.

Study area

The study was conducted at the Amhara region male volleyball clubs, which participate at the Ethiopian premier league. The two clubs were live in Bahir-Dar and Desse (Amhara Regional Government State portal, 2012).

Study population

The study population was consisted of all volleyball players and coaches at the Amhara region male Volleyball Club that were participate in Ethiopian premier league.

Data collection instruments

To collect the necessary information the researcher used primary data by questionnaires and observation from the selected clubs.

Methods of data analysis

A Statistical Package for Social Sciences (SPSS) software version 16.0 was used to analyze the collected data. Descriptive statistics (mean, standard deviation and percentage) were employed to describe prevalence and causes of injuries. Inferential statistics (chi-square) was employed assess the association between injury occurrence and different variables. Tables are used to present the analyzed data.

Results

Demographic information's of volleyball players

A total of 20 volleyball players were expected to participate in the study, so all players participated and completed the questionnaires.

Table 1. Demographic information's of volleyball players

Demographic information	NO. of respondents	Minimum	Maximum	Mean	Std. Deviation
Age	20	22 year	32 year	25.15 year	2.16 year
Height	20	1.76 cm	1.89 cm	1.84 cm	0.042 cm
Weight	20	73 kg	78 kg	75 kg	1.256 kg
Experience	20	1 year	5 year	3.15 year	1.14 year

60% of the respondents were completed secondary school and 25% of respondent's diploma and above, the rest 15% of respondents completed elementary school. In addition to educational status 95% of respondents were single and 5% were married.

Prevalence of injury

A total of 26 injuries were occurred during the season 2014/2016, giving an injury rate of 1.3 injuries per player. The majority of the volleyball players (80%) were experienced at least one or more injuries during the season. Based on the respondents knee injury was occurred at the highest rate (34.6%), occurred on volleyball players from 2014- 2016 G.C.

Mechanisms of injury occurrences

From the total percent's of injured players more than half (60.25%) were injured due to spiking and the rest 39.75% injury happened with blocking. Most injuries (70%) were occurred on the left/right front positions of the court, 25% injuries happened on the positions of setter and the rest 5% were on the left/right back court positions.

Injury occurred on the game set

Figure 2, shows that 31.25 % players injured in the 3rd set, 10.75% injured on first/second set, 35% players injured in fourth/fifth set, 18.75% players injured during warming up before the match and 4.25% player injured gradually.

Severity of injury

In this study 55% of the injured players were completed the training but the rest 45% were not completed at the time of injury happened. Most injuries were occurred moderate injuries (40%) followed by minor injuries (35%) among injured players, major injury occurred 25%.

Causes of injuries

According to this study 40% of the total players were used kneepad, 25 % were using sometimes and 35% players were not using kneepad. From this 37.5 % injured players were used always, 18.5% sometimes used kneepad and 43.75 % were not used kneepad from 2014 G.C up to the day of data collected. The current study indicates 65% of the total players were participated with other sport as recreation; from the total 50% (10/20) were injured players. 35% of the total players not engaged with other sport; from the total 30% (6/20) were injured players. Thus from injured players 62.5% were engaged with other sport like, WTF, jogging, football and handball, the rest injured players were not participated any sport.

Availability of water

40% of the total players were not getting access of water, 30% of players were sometimes used and the rest 30% were used water during competition & training. From total injured players 37.5% were not used water, 37.5 % were used sometimes and the rest 25% of injured players were used supply of water. According to the study result 37.5% of injuries were happened due to contact with another player, 12.5% were occurred fall on ground, 37.5% with wrong landing and 12.5% injuries as the results of players contact with opponents shows as in figure 5 below.

Situations of injury occurrence on injured players

Access to treatment services

From the total injured players 60% of were not getting an access of physiotherapy services while 20% were getting access sometimes and the rest 20% of injured players were getting an access of physiotherapy treatments by opponent club physiotherapist, coaches and teammates. The reason of not getting physiotherapy treatments was due to absent of physiotherapist and lack of financial problem to fulfill the treatment materials. 40% of the injured players were doing rehabilitation exercise to recovering their injury with in short period of time. Players also gave responses the questions of what type of exercise you done. From this 50% of injured players were doing jogging, rope jump & strength exercise (pushup, pull-up), the rest 6.25% of injured player were doing swimming but 60% of the total injured players were not doing instead of lack of information about the types and necessary of rehabilitation exercises.

Rehabilitation exercises after injured

Responses from coaches

Incidences of injury

Related factors for injury	Yes	No	Total
The clubs have their own volleyball court?	0	2	2
Players train & play at safe volleyball court?	0	2	2
Did you see incidence of injury on your player's competition or training?	2	0	2
Is a club having a physiotherapist?	0	2	2

The above table shows the two clubs did not have their own volleyball court; players were not train & play at safe environment, coaches seen incidence of injury. There was no a physiotherapist in the club due to these the injured players at the time of match treated by the opponent club physiotherapists but at the time of training injured players were treated by their coach and teammates. Coaches were seen injury happened on players both the time of competition and training.

Results from observations

The researcher was observed the listed points at the time of training.

Playing court: - from the observation the playing court surface was used long for period of time due to this it was rough and not level asphalt. This court gave multi-purpose for training and game to clubs and other intramural competitions; at the time of observation children's were playing football when volleyball players were doing warming up.

Availability of water: -at the time of observation on training there was not availability of water to players. The researcher seen few players was buying with their money but most players were not used water. Kneepad: - at the time of training some players were not used kneepad but the rest players were used old kneepad to preventing knee injury. At the observation some player used ankle brace. Physiotherapy services: - when at the time of observation there was no a physiotherapist on the training. The researcher seen injury happened on players due to jumping to spike without warming up. The injured player was treated with his coach.

Associations Of Injury Occurrence And Different Variables.

Table 1. Relation b/n injury occurrence and spiking/ blocking

Items	Alternatives	Responses	
		Frequency	Percent
Kind of situation players get injured.	serving	0	0
	blocking	7	40
	spiking	9	60
	Total	16	100

A chi-square test was conducted to assess the association between volleyball skills and injury. There was strong evidence of relationships between volleyball skills and injury occurrence (chi.sq. = 20.00 at df = 2, p-value 0.000). This result suggests that kind of situation can have an effect on injury occurrence. Specially, the result shows more injury were happened when a player playing in spiking than blocking.

A chi-square test was conducted to assess the association between player's position and injury. There was strong evidence of relationships between players' position and injury occurrence (chi.sq. = 20.00 at df = 3, p-value 0.000). This result suggests that player's position can have an effect on injury occurrence. Specially, the result shows more injuries were happen the positions of left/right front than setter.

A chi-square test was conducted to assess the associated between game sets and injury occurrence. There was an evidence of relation between game sets and injury occurrence (chi.sq. = 20.000 at df = 4, p = 0.000). This result suggests that game sets have an effect of injury occurrence. Especially the result shows more injuries were happen the 3rd set than 4th/5th of the game.

Discussion

The aim of the study was to assess the prevalence of knee injuries experienced by volleyball players of the clubs in one & half season..

Discussion and Results found in the present study is done in order to research questions.

- ❖ To what extent injuries happened to male volleyball players related with volleyball sport in the selected study clubs?
- ❖ What are the intrinsic and extrinsic factors associated with injury occurrence among volleyball players in the last year season?

Prevalence of injuries

In this study the research question presented in number one is answered. Injury was defined as any happening that occurs on players during training, warm-up & competition that requires medical attention (Zemper and Pieter, 1989) and causes the player to be absent from sport participation either in a training session or a match (McKay *et al.*, 2001). The severity of an injury was defined based on the time of absence due to the injury (Augustsson *et al.*, 2006; Bahr and Reeser, 2003). The first objective of the study was to determine the prevalence of volleyball injuries experienced among the two Volleyball club Players in a volleyball season. In volleyball, there are challenges facing studies in injury prevalence. According to Augustsson *et al.*, (2006), some players may be absent due to an injury, while others

continue with the same injury and others forget minor injury. In this study, the injury rate of the current study was 1.3. It was lower than the study conducted by Bahr (1997), which had 1.7 injuries per player and Hassan, (2008) indicates 1.43 injuries per players. This injury rate was higher than a previous study by Augustsson *et al.* (2006), which indicated 0.68 per players.

In this study the research question presented in number two is answered. Knee injuries showed the highest prevalence in the present study which correlate with studies conducted by (Augustsson *et al.*, 2006; Verhagen *et al.*, 2004; Bahret *al.*, 2003; Bahr, 1997; Hassan, 2008; Agel *et al.*, 2007). Knee injury occurred on the players of this study was very high related to the past researchers. In this study from injured volleyball players 34.6% of injury occurred on the knee. Bahr, (1997) indicated 8%; Bahr *et al.*, (2003) 30%; Verhagen *et al.*, (2004) figure out 12% of players were injured; Augustsson *et al.*, (2006) showed 18% players injured; Agel *et al.*, (2007) illustrated 14.1% of injured players were injured; Hassan, (2008) figure out 25.5% of injured players in the study were injured with knee injury.

Based on the respondent's knee, was the highest injured parts of the body related to the other studies due to lack of fingers techniques, wrong landing and wrong contact with teammates at the time of blocking and spiking finally players were not using kneepad.

Factors related to volleyball injuries

In this study the research question presented in number two is answered. The two research question of the study was to identify the intrinsic and extrinsic factors associated with the injuries experienced among the Amhara region male volleyball players that participating Ethiopian premier league. There are extrinsic factors which relate to volleyball injuries such as the nature of contact in volleyball, level of playing, participation in other sports and the players position. On the other hand age, height, gender and weight are intrinsic factors. Volleyball is a non-contact sport with a minor injury incidence than injuries in contact sports such as rugby, basketball, and soccer. The overall injury rate in volleyball is low compared to other sports Resser *et al.*, (2006),

Extrinsic Factors

The Majority of the injuries (37.5%) that occurred in the current study were due to contact with another player. It was less than the studies of Hassan (2008), 45.9%. Players in the left and right front row were significantly more prone to be injured during spiking & blocking. According to studies by Agel *et al.*, (2007), volleyball players at the nearest to the net are more prone to injuries than players in any other position. In the results it was shown that more than 93.75% of injuries occurred in the three front positions, which were greater than of the findings of Augustsson *et al.*, (2006) indicated 85% ; Hassan, (2008) showed 90%. This was due to the fact that players in these positions perform spiking and blocking, which are the most common actions leads for injuries in volleyball.

Another finding of the study was that 65% of the volleyball players also engaged in other sporting activities. It indicates greater than the studies of Hassan (2008), 35% of players engaged in other sport activities. According to Aagaard and Jorgensen, (1996), an increase of overuse injuries is related to participation in other sport activities due to an increase in the training hours but not injured with overuse injury. Participation in different kinds of activities also adds variation to training which can lead to a beneficial effect. Based on the study discussions, all injuries were happened due to extrinsic factors like, contact with another player, Playing in the left and right front row positions of court because of players wants to cover all spaces and repetitive actions and dual purposes on the front row players.

Among the players in this study, only 10.75% had injuries during the warm-up. It is the greater rate occurred during warm up in the study conducted by Augustsson *et al.*, (2006), 7.5% and greater than Hassan, (2008) 12.25%. The current study showed that 4.25% of players had injuries that occurred gradually and they could not indicate whether it occurred during a match, training, or warm-up. This was lower than the rate of injuries occurred gradually in the study of Augustsson *et al.*, (2006), which indicated 41% and Hassan, (2008) indicates 33.3%.

Results show that the training schedule of the two selected volleyball club was limited with average four days per week with duration of 2.75 hours; relatively it was greater than the result reported by Hassan, (2008) 3 days per a week for less than 3 hours. In the study by Augustsson *et al.*, (2006), more time was spent on training which enhances the players performing of exercises, leading to better physical performance and experience (Kraemer *et al.*, 2002). The study by Hassan (2008), injured players amount of absent from training as the results of volleyball injury was 73% but in this study was 37.50% so duration of absent from training was less than that of Hassan. In addition of this, injured players absent from match 62% in the study of Hassan (2008), but 43.75% was absent in this study so absent of duration on the game was less than his study because of more players were not injured with severe injury.

The past researcher was not seen in which set of the game players more injured, accessibility of using kneepad, and supply of water. In this study 31.25% of the injured players were injured at the 3rd set of the game and 35% on the 4th set. The result of this study show that 35% of players were not using kneepad from those 78.75% was injured players, 40% of players were not access of supply of water but 30% of players were using some times during training and competition. From responses of the respondents such factors were high due to lack of awareness the benefits of kneepad, sport commission not emphasize to supply of water, players injured more 3rd and 4th set of the game it shows players starting too tired on those sets. During lack of accessing supply of water at the training and match, dehydration will be occurred on players, the results of dehydration lead not control the overall activity based on this players lose their performance and injury occurrences.

Augustsson *et al.*, (2006), expressed their concern that an increase in the ratio of injury among volleyball players might be attributed to an increase in frequency, intensity and duration of the injury, which lead to a need to increase the prevalence of treatments. Early physiotherapy intervention helps in reducing and preventing the injury recurrence because physiotherapy provides treatment to achieve soft tissue damage rehabilitation. The results of study by Hassan (2008), 30% of the volleyball players regularly access physiotherapy treatments and 27.8 % were not getting the treatments due to different reasons such as not being educated about the use of physiotherapy, financial reasons, and no availability of services, so it was greater than of the current study which was 20% of volleyball players regularly accessed, 60% have never accessed physiotherapy services due to different reasons such as lack of physiotherapist and financial problem to fulfill the treatment materials. It indicates compared with his study in this study less injured players getting access of physiotherapy treatment and higher percentage of injured players were not getting this access. The result of this study showed that the most common reason for not seeking physiotherapy treatments were that lack of physiotherapist (81.25%). Due to lack of physiotherapists the prevalence of injuries will be high, so the concerned body will be informed about the importance of physiotherapy management in injuries.

INTRINSIC FACTORS

On the other side there was no significant relationship between volleyball injury and intrinsic factors, like age, experience (total number of years playing volleyball), educational status, height, weight and marital status like the study of Bahr R, Bahr IA, (1997) because all players were young and the results of body max index was normal.

Conclusion

The aim of this study was to determine the prevalence of knee injuries experienced among the Amhara region male volleyball players that participating Ethiopian premier league and to identify the intrinsic and extrinsic factors associated with the injuries experienced among the players in a volleyball season. There were different extrinsic factors recorded on injured players but intrinsic factors were not.

The study showed that 80% of the total players were injured and also 26 injuries recorded in the seasons. The injury prevalence was high (1.3 injuries per one player per season) compared to other studies in the same field. The most common injury happened on players in volleyball court position was the left and right front row and setter. In addition, the study showed that the most relevant mechanism to injury in volleyball was spiking and blocking. This study shows that most players injured on the 3rd and 4th set

during the game. It also indicated related to injury severity; due to moderate injuries volleyball players were not completes a match or their training. Most players were not getting supply of water at the time of training and competition. The study showed that most players did not have access to physiotherapy treatment due to the reason that they were not having physiotherapist. Thus, Kneepad and court surface is necessary to prevent the knee, the physiotherapy is needed to treat and rehabilitate sport injuries.

Recommendations

Based on the study results the researcher forwarded the following recommendation for the players, coaches and club owners: Most players experienced with Knee injury. This may be due to lack of protection materials like kneepad which identified as one of the shortage the clubs. Since the court they played on is rough asphalt player knee may be injury occur with fall. Therefore I recommend the club owner to provide knee protection materials (kneepad) so the player will prevent knee injury. The causes and prevalence's of injuries were not documented in the club due to this players can't know and managing the frequency of injured body part and causes. Therefore, I would recommend the coaches recording the players injured body part, causes and prevalence's. Not accessing of physiotherapy treatment at the time injury occurred was identified as causes of another sport injury. It was also confirmed through observation. Physiotherapy treatment is used to rehabilitates injuries, alleviates pain and increase overall health. Therefore, I would recommend the club owner to fulfill physiotherapists so that the injured player can have treatment immediately which helps to recover with short period of time. Due to contact with opponent players, teammates and also wrong landing most injuries were recorded on the clubs. This may be identified lack of techniques. Therefore, I would recommend the coaches teach the right ways of take-off, landing, different techniques of blocking and spiking to prevent injuries.

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Relationship between staff HRM practices and customer retention behaviors among Malaysian golf clubs

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Abstract

Golf is a popular sport worldwide, yet contemporary HRM practices of staff related to customer retention is not well defined. This study explored the current level of service-based practices and customer retention behavior among the Malaysian golf clubs in order to define their contributions as important components for successful management practices, and developed a model to improve the current statues of the clubs. 200 questionnaires were distributed among staff and members selected randomly from 34 golf clubs. The majority of staff had no contact with customers (56.1%) and aged 30-40 years. The highest frequency of membership type belonged to the costumers in golf (68.4%). Among the customers, the highest overall mean belonged to intention to renew subscale, while the lowest mean was observed for member involvement. The study showed that higher level of HRM practices of staff will make a better customer retention behaviour.

Key words: Golf, Human Resource Management, Directors, Staff, Member Retention

INTRODUCTION

Golf has evolved into a major industry since the game was first played in the early 1400s. Since 1994, golf practice has grown 75% as stated by Kelly and Freysinger (2000). As reported by the National Sporting Goods Association, golf-related expenditures ranked third in the recreational pursuits in 2012. Nevertheless, regardless of facilities, golf directors manage well and golf operations comprise of different aspects of golf management.

Every organization has different features and its own management style, based on its service type. However, the most common denominator in every institution is its human resources. To run businesses and attain organizational goals, all establishments, including sport firms, depend on human resources. Without effective and well-trained Human resources, no matter how sophisticated or expensive the facilities or the premise, other resources have little value to the organizations. Sport organizations are therefore closely dependent on human resources to succeed, because most of them are service-oriented (Doherty &Chelladurai, 1999).

It is important for staff of golf clubs to have knowledge in Support at Work; the physical aspects of organization and workplace environment that potentially hinder or facilitate employees' effort in accomplishing the given tasks. Also, they should get adequate training and follow a reward system, have the ability to supervise and receive appraisal upon good performance. Performance appraisal refers to "observation and assessment of employee performance against pre-determined job-related standards, for purpose(s) delineated by the organization" (Cheung & Law, 1998). It works on two levels to make employees understand their responsibility for their own work and help them improve their current performances. Level of involvement of Golf Club Customers or Golfers with an object, situation or actions is determined by the degree to which they perceive that concept to be personally relevant. Also, their satisfaction has great impact on the success of that club and increased satisfaction increases customers' loyalty (Prayag et al., 2017).

With regard to what was expressed above, this study thus ventured on to explore the current level of staffhuman resource management (HRM) practices and customer retention behavior among the Malaysian Golf Clubs in order to define its contribution as an important component for successful management practices.

Methodology

The target population and unit of analysis consist of all Malaysian Golf Clubs affiliated under Malaysia Golf Association (MGA). The population of this study was estimated to be 173 Golf Clubs according to the Malaysian Golf Association report (2014) all golf clubs that were private and semi-private clubs.

A total 200 questionnaires for each staff and members were distributed, 196 questionnaires returned for staff, which 25 of them were not completed also 183 costumer questioners were returned, in which 12 of them were not filled out either. To account for some possible complications that may occur throughout the research, the sample size as calculated above was increased 20% so the total of 200 questionnaires were distributed among both staff and member who were selected randomly among 34 golf clubs.

This study employed two separate questionnaires as faced-based (online) self-completion survey methods were concerned to conduct the study. In order to get insight on the in order to measure the employers' service-based practices, it was necessary to adopt a questionnaire previously developed and validated in Malaysia, in order to ensure the validity of the questionnaire, and so HRM practices of staff research survey was used (Husin et al., 2012). The questionnaire consisted of a section including items questioning the perceptions of respondents about HRM practices including performance appraisals, training, and their respective support at work, supervisory assistance and reward system. Through a 6-point Likert scale, the participants were asked to specify the extent to which they were agreed with the items, "1" being as strong disagreement to "6" as strong agreement. Non-managerial employees filled in this questionnaire. Demographic questions consisted of job position, age, gender, marital status, education, work length and salary.

The second instrument that was used in this study was the Member Retention Behavior Research Survey that was designed to evaluate the customer retention behavior and measure its success rate (Clem, 2011). In this study, three different Likert scales were used according to the original questionnaires. Golfers were asked to state their level of agreement or disagreement with each item based on a 7-point Likert. Responses for the Likert scale were coded as 1=Strongly Disagree, 2=Disagree, 3=Somewhat Disagree, 4=Neither Agree/Disagree, 5=Somewhat Agree, 6=Agree, and 7=Strongly Agree. Demographic questions consisted of gender, marital status, age, education and type of membership.

The piloting of the instrument was conducted among 24 customers and 27 staff to measure the reliability of the related instruments. For testing the reliability of the questionnaires, a Cronbach's Alpha test was implemented. If alpha is higher than 0.70, then this suggest that all of the items are reliable and also the entire test is internally consistent. The pilot study showed the alpha values of all the variables were greater than 0.70, and therefore the questionnaires were reliable for all the variables. Collected data were coded, computed and analysis was carried out with the SPSS (Version 22.0).

Structural equation modelling

Structural equation modelling is a method of analyses used to test measurement models (relations among indicators and latent variables) and also to examine the pathway relationships among latent variables. Measurement models are concerned with the relations between observed and latent variables. Two types of construct validity, including convergent and discriminant validity, can be evaluated through measurement models.

Since all the constructs at first order for both instruments were reflective; therefore, to composite reliability (CR) to evaluate internal consistency, and average variance extracted (AVE) to assess convergent validity were applied. In addition, the Fornell-Larcker criterion and cross loadings were used to assess discriminant validity. The criteria for three measurement models were assessed using Smart-PLS Ver 3.

Results

Demographic characteristics of Staff

In this survey, a total number of 170 staff completed the questionnaire. Table 1 presents a summary of staff demographic variables, including job, age, gender, marital status, ethnic, education, work length and salary. The analysis of the staff profile showed non-customer-contact (56.1%) were higher than customer-contact service (43.9%). In regard to the staff age, results indicate that the highest percentages were aged between 30 to 40 years (53.2%) followed by age less than 30 years (40.4%). Results for gender showed that 52.6 % of the staff were female and 47.4% were male. The frequency distribution for work length revealed that highest frequency belonged to staff with less than 5 years (54.4%) and 68.4% had a salary above RM 2000 per month.

Table 1: Frequency distribution based on employee characteristics.

Variable	Level	Frequency	Percent
Job	Customer-contact service	75	43.9
	Non-customer-contact	96	56.1
Age	<30 years old	69	40.4
	30_40 years old	91	53.2
	>40 years old	11	6.4
Gender	Male	81	47.4
	Female	90	52.6
Marital status	Not married	66	38.6
	Married	105	61.4
Education	Secondary level	71	41.5
	Tertiary level	100	58.5
Work length	<5 years	93	54.4
	5-15 years	56	32.7
	>15 years	22	12.9
Salary	<RM 2000	54	31.6
	>RM2001	117	68.4

Demographic characteristics of Customers

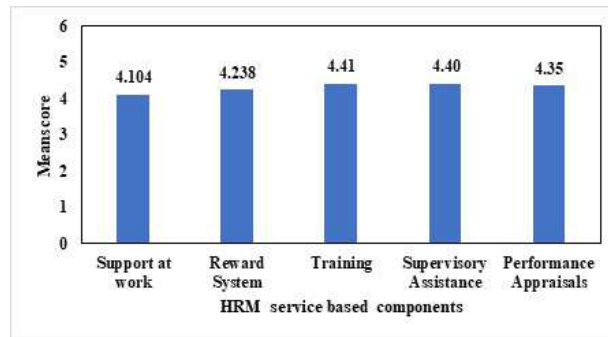
Table 2 presents a summary of the 170 customers who participated in this study regarding their gender, marital status, age, education and type of membership. Results from the examination of the participant's gender showed that 77.8% of respondents were male. The highest percentage of respondents aged between 30 to 40 years (64.9%), followed by age less than 30 years (26.3%); 52.6% had a bachelor degree, followed by respondents with diploma (32.2%). The frequency distribution for type of membership indicated that the highest frequency belonged to customer in golf (68.4%).

Table 2: Frequency distribution based on customers' characteristics.

Variable	Level	Frequency	Percent
Gender	Male	133	77.8
	Female	38	22.2
Marital status	Single	28	16.4
	Married	143	83.6
Age	<30 years old	45	26.3
	30_40 years old	111	64.9
	>40 years old	15	8.8
Education	Diploma and below	55	32.2
	Bachelor	90	52.6
	Master and above	26	15.2
Type of membership	Golf	117	68.4
	Social	18	10.5
	Dining	29	17
	Other	7	4.1

Level of HRM Practices among Staff

The level of HRM practices of staff was measured based on five subscales, including support at work, reward system, training, supervisory assistance and performance appraisals with five items which were measured the HRM service based among staff. The results showed that the highest overall mean belonged to Training subscale (M=4.41) and lowest mean was observed for support at work (M=4.104). The overall mean of all subscales was above 3.5(the median of scale), which shows that the level of HRM practices of staff was above moderate (Figure 1).

**Figure 1:**Level of HRM practices of staff.**Level of Customer Retention Behavior**

The customer retention behavior instrument was used to measure the level of customer retention with five subscales, including s member involvement, service quality, perceived value, member satisfaction and intention to renew membership which were measured the customer retention. The results showed that the highest overall mean belonged to intention to renew subscale (M=5.69) and lowest mean was observed for member involvement (M=4.50). Based on these results, the overall mean of all subscales was above 4 (the median of scale), which shows that the level of customer retention behavior was above moderate (Figure 2).

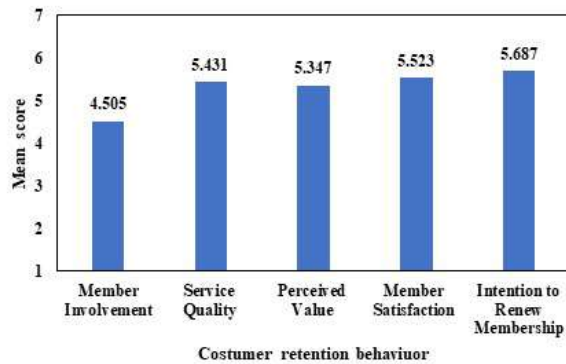


Figure 2:Level of customer retention behavior.

Convergent validity

a) HRM Practices

Composite Reliability (CR) for five reflective components of HRM practices of staff ranged between 0.776 and 0.862. In addition, in this questionnaire, AVE for all subscales of HRM practices were above 0.4. Thus, the results prove that AVE and CR exist for the constructs of this study (Table 3). The outer loadings of all items for all constructs ranged between 0.50 and 0.855, which were acceptable. The results of bootstrapping and significance test also confirmed significant contribution of all items to their related constructs. These results revealed that this questionnaire met the convergent validity.

Table 3:The result of Convergent Validity for HRM practices.

Variable	item	Loading	AVE	Composite Reliability	Cronbach's Alpha
Performance Appraisals	PA1	0.772	0.520	0.843	0.767
	PA2	0.759			
	PA3	0.712			
	PA4	0.757			
	PA5	0.589			
Reward System	REW1	0.502	0.485	0.777	0.758
	REW2	0.808			
	REW3	0.670			
	REW4	0.855			
	REW5	0.500			
Supervisory Assistance	SPA1	0.728	0.475	0.818	0.724
	SPA2	0.724			
	SPA3	0.748			
	SPA4	0.633			
	SPA5	0.600			
Support work at	SW1	0.731	0.555	0.862	0.804
	SW2	0.707			
	SW3	0.722			
	SW4	0.806			
	SW5	0.754			
Training	TR1	0.673	0.492	0.827	0.741
	TR2	0.610			
	TR3	0.795			
	TR4	0.687			
	TR5	0.727			

b) Costumer Retention Behaviour

The CR for five reflective components of customer retention behaviour ranged between 0.834 and 0.898. In addition, AVE for attitude and social network use was above 0.5. Thus, the results prove that AVE and CR existed for the constructs of this study (Table 4). The outer loadings of all items related to five subscales of customer retention behaviour ranged from 0.625 to 0.888, which were acceptable (>0.5). Furthermore, the results of significance test using bootstrapping method confirmed that all items made a significant contribution to the related constructs.

Table 4: The result of Convergent Validity for customer retention behaviour.

Variable	item	Loading	AVE	Composite Reliability	Cronbachs Alpha
Intention to Renew Membership	INT1	0.829	0.627	0.834	0.709
	INT2	0.808			
	INT3	0.736			
Member Involvement	MI1	0.768	0.647	0.880	0.82
	MI2	0.888			
	MI3	0.780			
	MI4	0.777			
Member Satisfaction	MS1	0.868	0.747	0.898	0.830
	MS2	0.883			
	MS3	0.841			
Perceived Value	PV1	0.786	0.678	0.863	0.762
	PV2	0.836			
	PV3	0.848			
	SQ1	0.744			
	SQ2	0.760			
Service Quality	SQ3	0.756	0.542	0.892	0.864
	SQ4	0.823			
	SQ5	0.754			
	SQ6	0.676			
	SQ7	0.625			

Discriminant Validity

Discriminant validity is defined when a construct is truly different from other constructs by empirical standards. Thus, establishing discriminant validity suggests that a construct is unique and captures phenomena not characterized by other constructs in the model (Hair et al., 2014). Discriminant validity can be tested by examining the AVE for each construct against squared correlations (shared variance) between the construct and all other constructs in the model. A construct will have adequate discriminant validity if the AVE exceeds the squared correlation among the constructs. Based on Tables 5 and 6 for staff and members questionnaire, AVE for each construct is more than each of the squared correlation between constructs. Therefore, discriminant validity is adequate for all of the constructs. According to the results of cross loading, all measurement items loaded higher against their respective intended latent variable compared to other variables. This study therefore concludes that the all three-measurement model has established its discriminant validity.

Table 5:Correlation of latent variables and discriminant Validity.

	PA	REW	SPA	SW	TR
PA	0.721				
REW	0.2103	0.659			
SPA	0.5065	0.3062	0.689		
SW	0.3923	-0.0451	0.3329	0.745	
TR	0.2285	0.1893	0.1914	0.2153	0.701

Table 6:Correlation of latent variables and discriminant Validity.

	INT	MI	M	PV	SQ
INT	0.792				
MI	0.049	0.804			
M	0.379	0.174	0.864		
PV	0.333	0.228	0.682	0.824	
SQ	0.275	0.322	0.271	0.330	0.736

Second order CFA for HRM practices and customer retention behavior

The structural model of this study was included two different group of respondents (staff and customer) from 34 golf clubs (primary sampling unit). Therefore, these two variables (HRM practices and customer retention behavior) were considered as higher order models or hierarchical component models (HCMs). For this study, the HRM practices and customer retention behavior had first-order components of reflective constructs, whereas the second order PLS is considered to be a good inferential tool, a correct method for formative constructs and the right technique for developing measurements with new theoretical or empirical backgrounds. To validate the second-order model of HRM practices and customer retention behavior the collinearity assessment needs to be done to get the variance inflation factor (VIF) as well as significance test of outer weight of observed variables. The results of the VIF for HRM practices and customer retention behavior is shown in the Table 7.

Table 7: Multicollinearity evaluation for second order formative constructs.

<i>HRM practices</i>		<i>Customer Retention</i>	
<i>Construct</i>	VIF	Construct	VIF
<i>PA</i>	1.406	INT	1.271
<i>REV</i>	3.98	MI	2.066
<i>SPA</i>	1.547	MS	4.36
<i>SW</i>	1.734	PV	4.161
<i>TR</i>	1.519	SQ	1.917

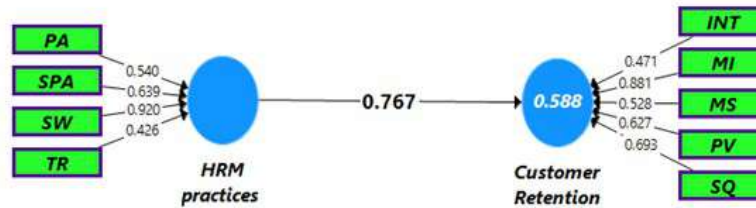
After checking the collinearity assessing the contribution of a formative indicator should be applied to found the relevance which is based on outer weight. The outer weight is the result of a multiple regression (Hair et al.,2010). The significance of outer weight in the current study was studied using bootstrap method Table 8 shows the results of bootstrapping on performance construct for both outer weight and outer loading. When an indicator's outer weight is not significant, but its outer loading is high (i.e., above 0.50), the indicator should be taken as absolutely important but not as quite important. In this situation, the indicator would generally be retained. But when an indicator has a non-significant weight and the outer loading is below 0.50, the indicator should be dropped. According to our results all indicators related to both HRM and customer retention behavior construct as a second order model retained in the model except "Reward" in HRM second order model which was not statistically significant.

Table 8: Outer weights and outer loading significance testing results using bootstrap.

		<i>Outer Loading</i>	<i>T value</i>	<i>P Values</i>	<i>Outer weight</i>	<i>T value</i>	<i>P Values</i>
<i>CR</i>	INT	0.530	1.812	0.071	0.248	1.792	0.074
	MI	0.723	3.420	0.001	0.303	2.330	0.020
	MS	0.843	4.421	<0.001	0.294	3.105	0.002
	PV	0.826	5.035	<0.001	0.267	3.824	<0.001
	SQ	0.685	4.063	<0.001	0.265	3.236	0.001
<i>HRM</i>	PA	0.639	4.423	<0.001	0.234	2.824	0.005
	REW*	0.237	0.883	0.378	0.043	0.356	0.722
	SPA	0.666	5.743	<0.001	0.336	4.203	<0.001
	SW	0.839	13.583	<0.001	0.504	6.694	<0.001
	TR	0.682	4.424	<0.001	0.284	3.521	<0.001

Path Analysis

The structural equation model is the second main step of SEM analysis after fitting the measurement model. The structural model can be applied by identifying the relationships among the variables. The structural model provides details on the relations between the variables. It illustrates the specific information of the relationship between the independent or exogenous variables and dependent or endogenous variables. According to the research framework, the effect of HRM practices of staff and customer retention behaviors were studied. Figure 3 shows the path model.

**Figure 3:** Path

practices of staff and customer retention behaviors.

model HRM

The results of bootstrapping method (Table 9) shows a p-value for the relation between HRM practices of staff and customer retention behaviours. The structural model relationships was significant considering a p-value = 0.05. In the model, the IV had a significant a positive coefficient, which means higher level of services based (HRM) practices of staff tend to result in better customer retention behaviors. The effect of HRM practices of staff was positive and significant ($\beta=0.767$, $p<0.05$). R^2 of current model for customer retention was 0.588, which is considered 58.8% of the reachable fitness.

Table 9: Test of the total effects of HRM practices of staff and customer retention behaviors using bootstrapping.

Path	β	SE	T value	P Values	95% CI	
					Lower	Upper
HRM->CR	0.767	0.189	4.047	<0.001	0.727	0.944

** Significant at 0.01 level

Discussion

The effect of HRM practices of staff was positive and significant, meaning that higher level of HRM practices of staff tends to make a better customer retention behavior. Based on the TQM, every organization tries to enhance its productivity and customer satisfaction (Choi, 2005). The main features of TQM emphasize on employee involvement, the customer and incessant development. The TQM literature indicates that appropriate managerial leadership is one of the factors that determine the variation in the success rate of TQM implementation. Therefore, philosophy and the vigorous implementation of TQM improves the service organizational performance (Khamalah, 2011).

Another important evaluation of a structural model is evaluating the direct and indirect relationships between exogenous and endogenous latent variables. To do so, the mediator variables (HRM) were introduced in the model and showed the effect of golf operation ($p < 0.05$) and client care development ($p < 0.05$) on customer retention behaviors still were positive and significant, indicating the direct effect of golf operation and client care development were significant on customer retention behaviors after mediation.

The studies on staff HRM and customer retention competencies in sport, especially in golf industry, are generally scarce compared to other domains, because human resources practice in a complex business organization does not easily transfer to sports organizations. Therefore, the results of this study may have important implications as it is among the very few studies available in the golf area (Choi, 2005; Choi et al, 2017; Husin et al, 2012). The formal application of human resources well-planned practices in golf can lead to effective and efficient operations.

Attraction of customers' loyalty through fulfilling their requests should be taken into vigilant account. Most possibly, this would elevate customer loyalty levels and their inclination to return, with its results being pools' continued benefit-making. These results support the findings of Kim and Kim (1995), Babakus (2004), Saatchyan et al. (2011), and Wu (2005). According to Wu (2005), the first encounter of staff with customers may create a general judgment of customer about the sports club. Most members of sports service organizations such as golf clubs refer to them for passing their leisure hours in a peaceful atmosphere. Consequently, their contentment is a primary factor in their tendency to return.

Usually, finding and attracting new members is more challenging and expensive than retaining the current ones; therefore, clubs should put more emphasis on member retention strategies. One advantage of focusing on member retention is that golf clubs can use valuable information about preferences and behaviours of their members collected over time by staff, making it easier to fulfill needs and wants of the members. This information is not readily available for new members. In addition, recruiting new members could sometimes mean taking them away from other country clubs, creating the need to provide incentives to switch. Moreover, when customers are loyal for longer time, there are potential opportunities for increased value, because loyal customers cost less to serve, spend more over time as trust increases and recommend new customers (Reichheld & Sasser, 1990).

The available research on factors mainly related to golf club members' intentions to renew their membership is minimal. The role of member involvement was therefore of a particular interest in this research, because previous studies pertaining to golf clubs only assessed how services of the clubs affected decisions of members to retain their memberships (Ferriera, 1997), rather than the way the members personally impacted their own loyalty. Understanding how members affect their satisfaction with the golf club through involvement in club activities may result in a better understanding of how membership renewal decisions are affected.

Recently, Back and Lee (2009) surveyed gold clubs and showed a significant mediating effect of member satisfaction on member loyalty. They also found that the higher satisfaction the members had, the more eager the members were to spread positive word about the club to friends and other members. Clem et al., (2013) also concluded that member retention increased with the increase in member satisfaction. One suggested way to increase satisfaction is to add extra facilities, such as free junior golf lessons, happy hour pricing in the lounge and complementary golf clinics, to satisfy members (Foust, 2009; Pennington, 2009). For that, it is important to talk to members about how the club can improve existing facilities and what amenities they want the club to provide. However, clubs must maintain superior quality of programs, because quality is a criterion used by members whether or not to retain membership. Club directors should also recruit staff who are committed to satisfying and going beyond the members' needs by building member relationships and providing quality services.

Another important factor is keeping the track of the perceived quality of the service offered by staff and satisfaction levels of members. As Yates (2002) suggests, the value of golf club for a member may be associated with three aspects of the golf course: (i) the quality of the playing experience, (ii) the quality of course maintenance, and (iii) the quality of design of the course. Member satisfaction may drop if they experience poor service on the course, such as long waiting times between the holes, and delayed maintenance of the greens and fairways.

Conclusion

In conclusion, Malaysia has well proven to be a successful, appealing hub for golfers across the globe, and having smarter management schemes could improve the country exponentially in the coming years in becoming a much bigger and a much more powerful player in both construction as well as management of exquisite and extraordinary golf clubs across the region. Therefore, it is vital for every golf club to equip membership programs and climb their operations to a very high standard.

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The Major Causes Of Sport Injury And Its Impact On Player's Performance In Case Of Fasile Kenema Female Foot Ball Club

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Abstract:

Injury is defined as an incident occurring during a training session or a match and causing a soccer player to miss the following sessions. One important element in determining the causes of injuries and prevention is having a proper understanding of the causes and ways of preventing as well as treatment techniques. The purpose of the research was to investigate the major causes, of sport injury and its impact on players in Fasil Kenema female football club. The participants of the research were 29; Out of this 23 football players, 2 coaches, 3 administrators of the clubs and 1 team physician were used as a sample using random sampling technique. The major instruments in this study were questionnaire, interview, observation and focus group discussion. Descriptive method of data analysis was used to analyze the data. Scarcity of proper sportswear, lack of awareness on causes of injury, absence qualified team physician and coaches, lack of first aid materials, inappropriate training surfaces, overdose of training and absence/inappropriate warm-up ,cool down, stretching of the ligaments and joints were the major perceived cause of injuries stated by football players, coaches, administrators of the club and team physician. Therefore, depending on the result, it is recommended that concerned bodies such as football players, coaches, administrators of the clubs and team physician should strive to minimize players" injuries. **Keywords:** Injury, Female football

Background of the Study

Football is one of the most popular sports throughout the world. It has a high injury rate, and most injuries occur in the lower limb (Benjamin, 2017). The injury was defined as an incident occurring during a training session or a match and causing a soccer player to miss the following sessions (Walden, Hagglund, & Ekstrand, 2005).

Football is fun, keeps you fit and prevents diseases. However, it can sometimes result in injury or in very rare cases, sudden cardiac arrest, if football health potential is to be fully exploited, possible risks must be kept to a minimum. To this end, FIFA Medical Assessment and Research Centre have developed a series of prevention measures (Michel, n. d). According to Shivers, (2004) sports injuries are the result of both intrinsic and extrinsic factors and doctors should be able to recognize the types of injuries associated with various sports. Bahr & Engebretsen, (2011) considered intrinsic factors, also called internal athlete-related risk factors, as including the age, sex, weight, strength, and flexibility of the athlete and extrinsic risk factors can be divided into factors related to exposure, training, equipment and environment. Type of sports, exposure time, position in the team, and level of competition are exposure factors.

The common football injuries are hands and arms, head and face, groin pull, muscle cramp, hamstring pull, knee, ankle sprain/fracture, Achilles tendonitis, calf strain and shoulder dislocation (Andersen, et al. 2004).According to Andersen, et al. (2004).the most football injury prevention methods are performing warming up, cool down, and stretching, appropriate sportswear and protection, hydration, rest and recovery. According to Verhagen, & Mechelen, (2008), injury prevention research has been described as a model of four step sequence by reducing sports injuries such as, (1) establishing the extent of the problem: incident and severity (2) establishing the cause and mechanism of injuries, (3) introducing preventive measures (4) Assessing the effectiveness of prevention measures by repeating step one.

Therefore, Injury risk can be reduced through implementing injury prevention measures such as those discussed above. Adopting most or all of these measures will help provide a safer sporting environment for players.

Hence, one important element in determining the causes of injuries is, having a proper understanding of the causes and ways of preventing as well as rehabilitation techniques. Therefore, the causes of football sport injuries are the one among the factors that affect the performance of athletes. To maintain pick performance of the players, it requires understanding causes, prevention and treatments of football player injuries. The purpose of this study, therefore, was to examine the perceived causes, prevention and treatment of soccer players" injuries in Fasile Kenema female football clubs.

Statement of the Problem

Fasile Kenema female football club is the home of fantastic female players in Ethiopian female primer league it doesn't compete with its best potential with others clubs due to various reasons. But the main reason lies on the occurrence of injuries in players hinders its performance in many ways.

Despite the growing popularity of women's football and the increasing number of female players in Ethiopia female primer league, the number and type of injuries occurred in players is increasing from time to time. To make things even worse there has been little research on identifying the major causes of sport injuries in female football players. And hence, the study aims to investigate the major causes of sport injuries and its impact on performance of players in Fasile Kenema Female Football Club.

Method and Procedures:

In order to investigate the measure causes of sport injuries in female footballers in Faisle Kenema female football club a qualitative research design was used.

The target population for the study was female footballers of Faisle Kenema sport club. There are 23 female football players in the club and a total of 6 coaching staff, administrative staff and physician. Since the number of population (participants) is small enough, hence the researcher used census survey so as to include all the participants. As a result all the players, coaching staff, medical staff and management officials were selected chosen purposively.

For analyzing the collected data descriptive analysis were used. Descriptive statistics like frequency tables, percentages, mean, standard deviation and diagrams were used to examine and understand the major causes and effects of sport injury on the players performance.

Results and Discussion:

Descriptive Statistics : Frequency of Injury in Different Situations

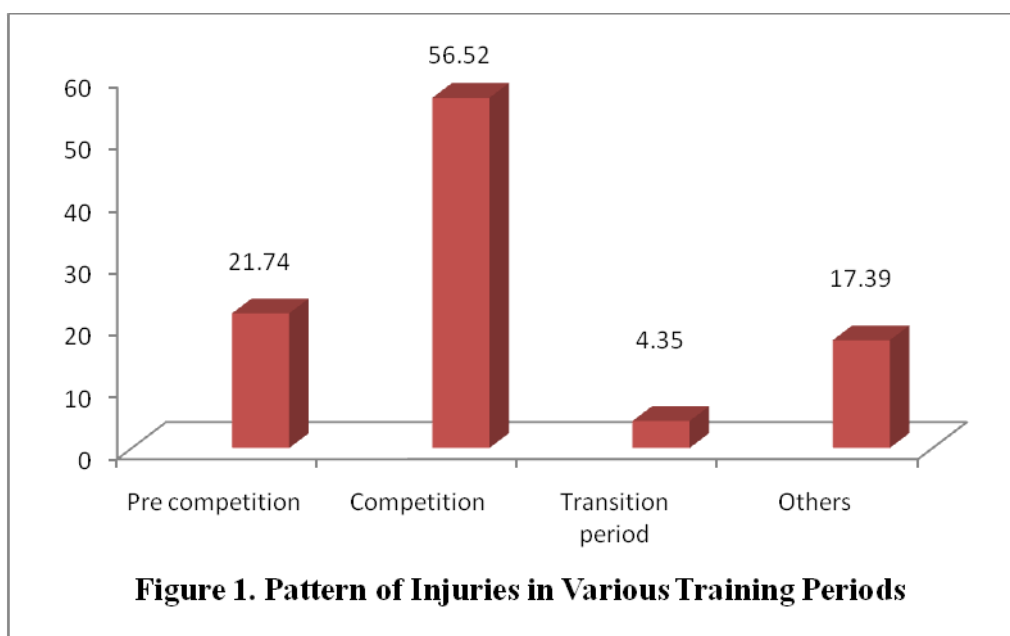
Pattern of injuries in various training periods

Table 1: Pattern of Injuries in Various Training Periods

Injury time	Frequency	Percent	Cumulative
Pre competition	5	21.74	21.74
Competition	13	56.52	78.26
Transition period	1	4.35	82.61
Others	4	17.39	100
Total	23	100	

Source: own computation, 2018

The Table3 data revealed that 13 (56.52%) of the players responded that most injuries happened during competition period. The remaining 5 (21.74%) of the respondents revealed that the injuries happened during per competition period as well as non- injuries happened during the transition period and others as players claimed.



Injuries and body parts

Table 2: Injury frequency with related to Body Part

Frequency of injuries in body parts			
Injury in body part	Frequency	Percent	Cumulative.
Lower body part	19	82.61	82.61
Upper body part	3	13.04	95.65
Above neck	1	4.35	100
Total	23	100	

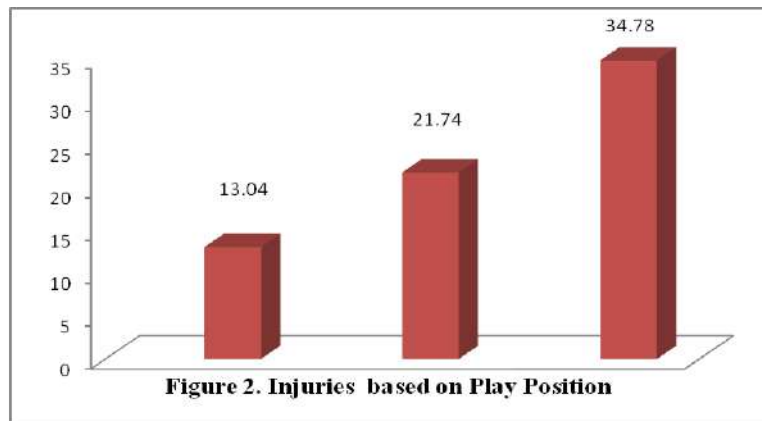
Source: own computation, 2018

Play Position of Player of Faisle Kenema Female Football Club

Table 3: Play Position of Players and the frequency of injury

	Frequency	Percent	Cumulative.
Goal Keeper	3	13.04	13.04
Striker	5	21.74	34.78
Defender	8	34.78	69.57
Mid Fielder	7	30.43	100
Total	23	100	

Source: own computation, 2018



Conclusion

The main objective of this study was to investigate the major cause of sport injury and its impact on player's performance in Faisle Kenema female football club. Besides this, the target populations of the study were a football players, coaches, club administrators and team physician. The mean age and experience of players were very small and hence this increased the rate of injury occurrence in the club. Most players injured during the competition season; players injured lower body part such as ankle, knee and heel by means of tackling, collusion, running, jumping and charging this reasons exposed players during competition rather than a training session. Defense players were frequently injured comparing with other position players. Training, inappropriate sportswear's, inadequate warming up, cool down, lack of adequate physical fitness and rehabilitation, lack of adequate nutrition, inappropriate playground, hard surfaces, misunderstanding of training principles and lack of qualified team physician practitioners were identified as the causes of injuries.

Recommendations

The team holder should fulfill all the necessary sport wears, follow proper training schedule, and also fulfill team physician to minimize and treat sport injuries. Further the following are important for minimizing sport injury; coaching staff has to follow explanation of load and follow scientific method with considering volume, intensity and duration of time during training session with systematic progress. Coaches' should give a great attention for a proper warming up in regarding each player. The player must be familiarizing to sport equipment in order to use it in a current way for their safety measure. Injured players should not be involving directly in high load of physical activity during training session.

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**‘Physical education makes you go well with and healthy’.
Physical education’s contribution to young people’s physical recreation levels**

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Abstract:

The cause of this learn about used to be to determine physical recreation levels all through high school physical education lessons. The information have been viewed in relation to endorsed levels of physical recreation to confirm whether or not or no longer physical education can be high-quality in supporting young human beings meet health-related goals. Sixty-two boys and 60 female (aged 11–14 years) wore coronary heart rate telemeters during physical education lessons. Percentages of lesson time spent in moderate-and-vigorous (MVPA) and vigorous depth physical undertaking (VPA) were recorded for each student. Students engaged in MVPA and VPA for 34.3 ± 21.8 and $8.3 \pm 11.1\%$ of lesson time, respectively. This equated to 17.5 ± 12.9 (MVPA) and 3.9 ± 5.3 (VPA) min. Boys participated in MVPA for $39.4 \pm 19.1\%$ of lesson time compared to the women ($29.1 \pm 23.4\%$; $P < 0.01$). High-ability students were greater lively than the average- and low capacity students. Students participated in most MVPA in the course of group video games ($43.2 \pm 19.5\%$; $P < 0.01$), while the least MVPA was found in the course of movement things to do ($22.2 \pm 20.0\%$). Physical schooling may also make an extra big contribution to young people’s everyday physical recreation participation if classes are deliberate and delivered with MVPA desires in mind.

Introduction:

Regular physical activity participation throughout childhood provides immediate health benefits, bypositively effecting body composition and musculoskeletal development (Malina and Bouchard,1991), and reducing the presence of coronary heart disease risk factors (Gutinet al., 1994). In recognitionof these health benefits, physical activity guidelines for children and youth have been developedby the Health Education Authority [now Health Development Agency (HDA)] (Biddle et al.,1998). The primary recommendation advocates the accumulation of 1 hour’s physical activity per dayof at leastmoderate intensity (i.e. the equivalent of brisk walking), through lifestyle, recreational andstructured activity forms. A secondary recommendation is that children take part in activities that helpdevelop and maintain muscular-skeletal health, on at least two occasions per week (Biddle et al., 1998).This target may be addressed through weight bearing activities that focus on developing muscularstrength, endurance and flexibility, and bone health.

School physical education (PE) provides a context for regular and structured physical activityparticipation. To this end a common justification for PE’s place in the school curriculum is that itcontributes to children’s health and fitness (Physical Education Association of the United Kingdom,2004; Zeigler, 1994). The extent to which this rationale is accurate is arguable (Koslow, 1988;Michaud and Andres, 1990) and has seldom been tested. However, there would appear to be some truth in the supposition because PE is commonly highlighted as a significant contributor to help young people achieve their daily volume of physicalactivity (Biddle et al., 1998; Corbin and Pangrazi, 1998). The important role that PE has inpromoting health-enhancing physical activity is exemplified in the US ‘Health of the Nation’ targets. These include three PE-associated objectives, two of which relate to increasing the numberof schools providing and students participating in daily PE classes.

The third objective is to improve the number of students who are engaged in beneficial physical activity for at least 50% of lesson time (US Department of Health and Human Services, 2000). However, research evidence suggests that this criterion is somewhat ambitious and, as a consequence, is rarely achieved during regular PE lessons (Stratton, 1997; US Department of Health and Human Services, 2000; Levin et al., 2001; Fairclough, 2003a). The potential difficulties of achieving such a target are associated with the diverse aims of PE.

These aims are commonly accepted by physical educators throughout the world (International Council of Sport Science and Physical Education, 1999), although their interpretation, emphasis and evaluation may differ between countries. According to Simons-Morton (Simons-Morton, 1994), PE's overarching goals should be (1) for students to take part in appropriate amounts of physical activity during lessons, and (2) become educated with the knowledge and skills to be physically active outside school and throughout life. The emphasis of learning during PE might legitimately focus on motor, cognitive, social, spiritual, cultural or moral development (Sallis and McKenzie, 1991; Department for Education and Employment/Qualifications and Curriculum Authority, 1999). These aspects may help cultivate students' behavioral and personal skills to enable them to become lifelong physical activity participants [(thus meeting PE goal number 2 (Simons-Morton, 1994)]. However, to achieve this, these aspects should be delivered within a curriculum which provides a diverse range of physical activity experiences so students can make informed decisions about which ones they enjoy and feel competent at. However, evidence suggests that team sports dominate English PE curricula, yet bear limited relation to the activities that young people participate in, out of school and after compulsory education (Sport England, 2001; Fairclough et al., 2002). In order to promote life-long physical activity a broader base of PE activities needs to be offered to reinforce the fact that it is not necessary for young people to be talented sportspeople to be active and healthy. While motor, cognitive, social, spiritual, cultural and moral development are valid areas of learning, they can be inconsistent with maximizing participation in health-enhancing physical activity [i.e. PE goal number 1 (Simons-Morton, 1994)]. There is no guidance within the English National Curriculum for PE [NCPE (Department for Education and Employment/Qualifications and Curriculum Authority, 1999)] to inform teachers how they might best work towards achieving this goal. Moreover, it is possible that the lack of policy, curriculum development or teacher expertise in this area contributes to the considerable variation in physical activity levels during PE (Stratton, 1996a). However, objective research evidence suggests that this is mainly due to differences in pedagogical variables [i.e. class size, available space, organizational strategies, teaching approaches, lesson content, etc. (Borys, 1983; Stratton, 1996a)]. Furthermore, PE activity participation may be influenced by inter-individual factors. For example, activity has been reported to be lower among students with greater body mass and body fat (Brooke et al., 1975; Fairclough, 2003c), and higher as students get older (Selinger et al., 1980). In addition, highly skilled

students are generally more active than their lesser skilled peers (Li and Dunham, 1993; Stratton, 1996b) and boys tend to engage in more PE activity than girls (Stratton, 1996b; McKenzie et al., 2000). Such inter-individual factors are likely to have significant implications for pedagogical practice and therefore warrant further investigation. In accordance with Simons-Morton's (Simons-Morton, 1994) first proposed aim of PE, the purpose of this study was to assess English students' physical activity levels during high school PE. The data were considered in relation to recommended levels of physical activity (Biddle et al., 1998) to ascertain whether or not PE can be effective in helping children be 'fit and healthy'. Specific attention was paid to differences between sex and ability groups, as well as during different PE activities.

Method:

One hundred and twenty-two college students (62 boys and 60 girls) from 5 country high schools in Sialkot, Sialkot participated in this study. Stage sampling was used in every college to randomly pick one boys' and one girls' PE class, in each of Years 7 (11–12 years), 8 (12–13 years) and 9 (13–14 years). Three students per class were randomly chosen to take part. These students had been categorized as 'high', 'average' and 'low' ability, primarily based on their PE teachers' assessment of their competence in specific PE activities. Written knowledgeable consent used to be achieved prior to the study commencing. The schools taught the statutory programs of study specified in the NCPE, which is prepared into six activity areas (i.e. athletic activities, dance, games, gymnastic activities, out of doors activities and swimming).

The focus of studying is through 4 awesome factors of knowledge, skills and understanding, which relate to; talent acquisition, skill application, comparison of performance, and expertise and understanding of fitness and fitness (Department for Education and Employment/Qualifications and Curriculum Authority, 1999). The students attended two weekly PE lessons in combined ability, singlesex groups. Girls and boys were taught by using male and female professional physical educators, respectively.

Instruments and procedures:

The investigation received ethical approval from the Liverpool John Moores Research Degrees Ethics Committee. The study involved the monitoring of heart rates (HRs) during PE using short-range radio telemetry (Vantage XL; Polar Electro, Kempele, Finland). Such systems measure the physiological load on the participants' cardio respiratory systems, and allow analysis of the frequency, duration and intensity of physical activity. HR telemetry has been shown to be a valid and reliable measure of young people's physical activity (Freedson and Miller, 2000) and has been used extensively in PE settings (Stratton, 1996a). The students were fitted with the HR telemeters while changing into their PE uniforms. HR was recorded once every 5 s for the duration of the lessons. Telemeters were set to record when the teachers officially began the lessons, and stopped at the end of lessons. Total lesson 'activity' time was the equivalent of the total recorded time on the HR receiver. At the end of the lessons the telemeters were removed and data were downloaded for analyses. Resting HRs were obtained on non-PE days while the students lay in a supine position for a period of 10 min. The lowest mean value obtained over 1 min represented resting HR. Students achieved maximum values following completion of the Balke treadmill test to assess cardiorespiratory fitness (Rowland, 1993). This data was not used in the present study, but was collated for another investigation assessing children's health and fitness status. Using the resting and maximum HR values, HR reserve (HRR, i.e. the difference between resting and maximum HR) at the 50% threshold was calculated for each student. HRR accounts for age and gender HR differences, and is recommended when using HR to assess physical activity in children (Stratton, 1996a). The 50% HRR threshold represents moderate intensity physical activity (Stratton, 1996a), which is the minimal intensity required to contribute to the recommended volume of health-related activity (Biddle et al., 1998). Percentage of lesson time spent in health enhancing moderate-and-vigorous physical activity (MVPA) was calculated for each student by summing the time spent >50% HRR threshold. HRR values >75% corresponded to vigorous intensity physical activity (VPA). This threshold represents the intensity that may stimulate improvements in cardio respiratory fitness (Morrow and Freedson, 1994) and was used to indicate the proportion of lesson time that students were active at this higher level.

Design:

Sixty-six lessons were monitored over a 12-week period, covering a variety of group and individual activities (Table I). In order to allow statistically meaningful comparisons between different types of activities, students were classified as participants in activities that shared similar characteristics. These were, team games [i.e. invasion (e.g. football and hockey) and striking games (e.g. cricket and softball)], individual games (e.g. badminton, tennis and table tennis), movement activities (e.g. dance and gymnastics) and individual activities [e.g. athletics, fitness (circuit training and running activities) and swimming]. The intention was to monitor equal numbers of students during lessons in each of the four designated PE activity categories. However, timetable constraints and student absence meant that true equity was not possible, and so the number of boys and girls monitored in the different activities was unequal.

Analyses:

Student sex, ability level and PE activity category were the independent variables, with percent of lesson time spent in MVPA and VPA set as the dependent variables. Exploratory analyses were conducted to establish whether data met parametric assumptions. Shapiro-Wilk tests revealed that only boys' MVPA were normally distributed. Subsequent Levene's tests confirmed the data's homogeneity of variance, with the exception of VPA between the PE activities. Though much of the

Table I. Number and type of monitored PE lessons

PE activity category		No. of lessons	
Boy	Girls	All students	
Team games		15	7
Movement activities		3	13
Individual activities		7	10
Individual games		7	4
Total		32	34

data violated the assumption of normality, the ANOVA is considered to be robust enough to produce valid results in this situation (Vincent, 1999). Considering this, alongside the fact that the data had homogenous variability, it was decided to proceed with ANOVA for all analyses, with the exception of VPA between different PE activities. Sex 3 ability level factorial ANOVAs compared the physical activity of boys and girls who differed in PE competence. A one-way ANOVA was used to identify differences in MVPA during the PE activities. Post-hoc analyses were performed using Hochberg's GT2 correction procedure, which is recommended when sample sizes are unequal (Field, 2000). A non-parametric Kruskal-Wallis ANOVA calculated differences in VPA during the different activities. Post-hoc Mann-Whitney U-tests determined where identified differences occurred. To control for type 1 error the Bonferroni correction procedure was applied to these tests, which resulted in an acceptable α level of 0.008. Although these data were ranked for the purposes of the statistical analysis, they were presented as means \pm SD to allow comparison with the other results. All data were analyzed using SPSS version 11.0 (SPSS, Chicago, IL).

Results:

The average duration of PE lessons was 50.6 \pm 20.8 min, although girls' (52.6 \pm 25.4 min) lessons generally lasted longer than boys' (48.7 \pm 15.1 min). When all PE activities were considered together, students engaged in MVPA and VPA for 34.3 \pm 21.8 and 8.3 \pm 11.1% of PE time, respectively. This equated to 17.5 \pm 12.9 (MVPA) and 3.9 \pm 5.3 (VPA) min. The high-ability students were more active than the average- and low-ability students, who took part in similar amounts of activity. These trends were apparent in boys and girls (Table II).

Boys engaged in MVPA for 39.4% \pm 19.1 of lesson time compared to the girls' value of 29.1 \pm 23.4 [F(1, 122) = 7.2, P < 0.01]. When expressed as absolute units of time, these data were the

Table II. Mean (\pm SD) MVPA and VPA of boys and girls of Differing abilities

Sex	Ability	n	MVPA
VPA			(% lesson)
Boys			
13.2 \pm 13.5	high	22	49.9 \pm 19.8
7.4 \pm 9.3	Average	21	35.7 \pm 17.7
10.1 \pm 10.5	Low	19	39.3 \pm 20.0
10.3 \pm 11.4b	Combined	62	39.4 \pm 19.1a
Girls			
8.8 \pm 12.4	high	22	33.7 \pm 22.9
3.3 \pm 7.5	Average	18	25.5 \pm 23.2

5.9 \pm 10.0	Low	20	27.3 \pm 24.5
6.2 \pm 10.4	Combined	10	29.1 \pm 23.4
Boys	Abilities		
11.1 \pm 13.0	high	44	38.3 \pm 21.7
and girls	Average	39	31.0 \pm 20.8
5.5 \pm 8.7	Low	39	33.1 \pm 22.9
8.0 \pm 10.3	Combined	122	34.3 \pm 21.8
8.3 \pm 11.1	Abilities		

aBoys > girls, $P < 0.01$.

bBoys > girls, $P < 0.05$.

equivalent of 18.9 \pm 10.5 (boys) and 16.1 \pm 14.9 (girls) min. Furthermore, a 4% difference in VPA was observed between the two sexes [Table II; $F(1,122) = 4.6$, $P < 0.05$]. There were no significant sex \times ability interactions for either MVPA or VPA. Students participated in most MVPA during team games [43.2 \pm 19.5%; $F(3, 121) = 6.0$, $P < 0.01$]. Individual games and individual activities provided similar stimulus for activity, while the least MVPA was observed during movement activities (22.2 \pm 20.0%; Figure 1). A smaller proportion of PE time was spent in VPA during all activities. Once more, team games (13.6 \pm 11.3%) and individual activities (11.8 \pm 14.0%) were best suited to promoting this higher intensity activity ($\chi^2 = 30.0$; $P < 0.01$). Students produced small amounts of VPA during individual and movement activities, although this varied considerably in the latter activity (Figure 2).

Discussion:

This study used HR telemetry to assess physical activity levels during a range of high school PE lessons. The data were considered in relation to recommended levels of physical activity (Biddle et al., 1998) to investigate whether or not PE can be effective in helping children be 'fit and healthy'. Levels of MVPA were similar to those reported in previous studies (Klausen et al., 1986; Strand and Reeder, 1993; Fairclough, 2003b) and did not meet the US Department of Health and Human Services (US Department of Health and Human Services, 2000) 50% of lesson time criterion. Furthermore, the data were subject to considerable variance, which was exemplified by high standard deviation values (Table II, and Figures 1 and 2). Such variation in activity levels reflects the influence of PE-specific contextual and pedagogical factors [i.e. lesson objectives, content, environment, teaching styles, etc. (Stratton, 1996a)]. The superior physical activity levels of the high-ability students concurred with previous findings (Li and Dunham, 1993; Stratton, 1996b). However, the low-ability students engaged in more MVPA and VPA than the average ability group. While it is possible that the teachers may have inaccurately assessed the low and average students' competence, it could have been that the low-ability group displayed more effort, either because they were being monitored or because they associated effort with perceived ability (Lintunen, 1999). However, these suggestions are speculative and are not supported by the data. The differences in activity levels between the ability groups lend some support to the criticism that PE teachers sometimes teach the class as one and the same rather than planning for individual differences (Metzler, 1989). If this were the case then undifferentiated activities may have been beyond the capability of the lesser skilled students. This highlights the importance of motor competence as an enabling factor for physical activity participation. If a student is unable to perform the requisite motor skills to competently engage in a given task or activity, then their opportunities for meaningful participation become compromised (Rink, 1994). Over time this has serious consequences for the likelihood of a young person being able or motivated enough to get involved in physical activity which is dependent on a degree of fundamental motor competence.

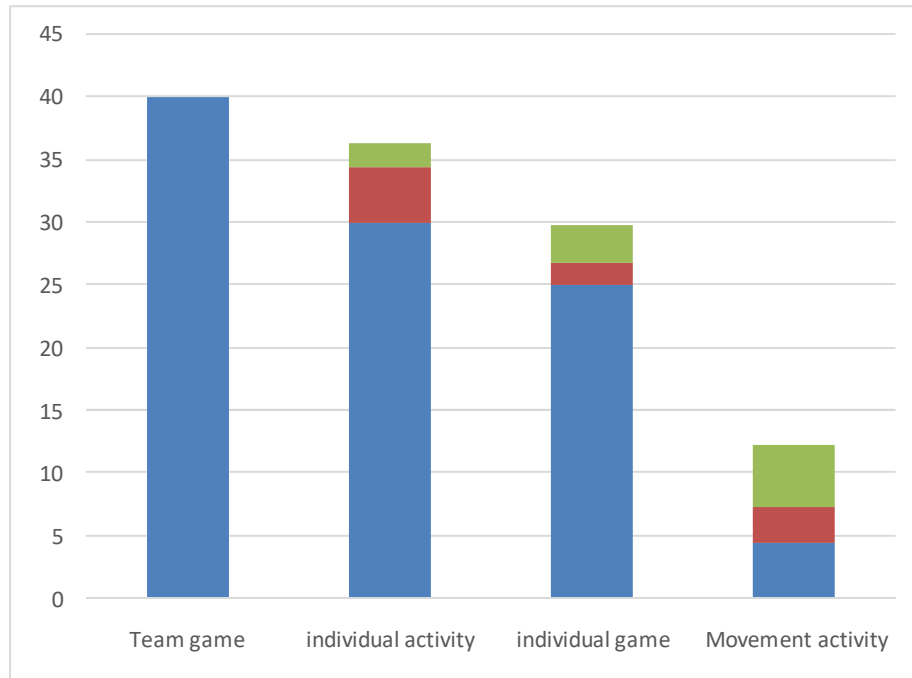


Fig. 1. Mean (6SD) MVPA during different PE activities. **Team games > movement activities ($P < 0.01$).
*Individual activities > movement activities ($P < 0.05$).

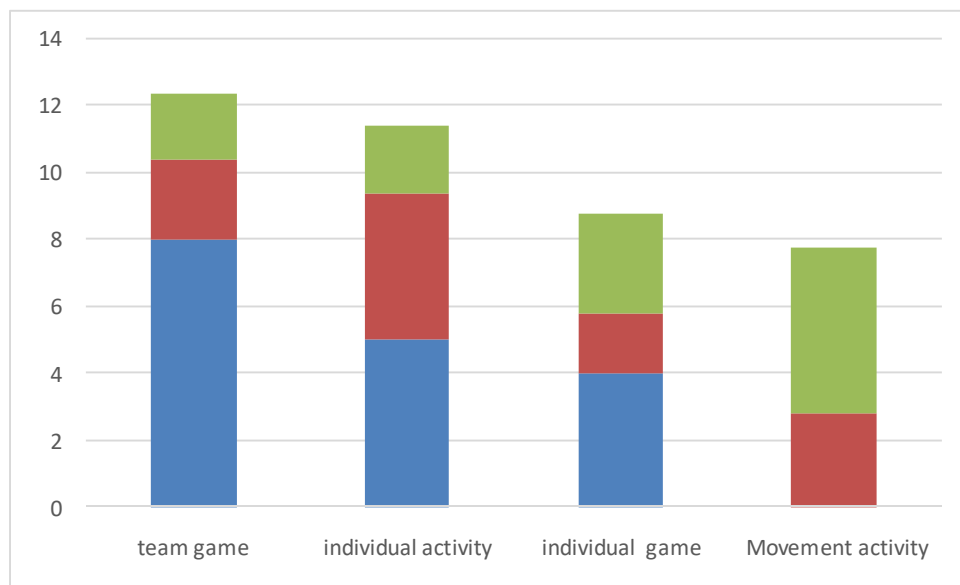


Fig. 2. Mean (6SD) VPA during different PE activities. **Team games > movement activities ($Z(3) = 4.9$, $P < 0.008$) and individual games ($Z(3) = 3.8$, $P < 0.008$). individual activities > movement activities ($Z(3) = 3.3$, $P < 0.008$). individual game > movement activities ($Z(3) = 2.7$, $P < 0.008$).

Boys spent a greater proportion of lesson time involved in MVPA and VPA than girls. These differences are supported by other HR studies in PE (Mota, 1994; Stratton, 1997). Boys' activity levels equated to 18.9 min of MVPA, compared to 16.1 min for the girls. It is possible that the characteristics and aims of some of the PE activities that the girls took part in did not predispose them to engage in whole body movement as much as the boys. Specifically, the girls participated in 10 more movement lessons and eight less team games lessons than the boys. The natures of these two activities are diverse, with whole body movement at differing speeds being the emphasis during team games, compared to aesthetic awareness and control during movement activities. The monitored lessons reflected typical boys' and girls' PE curricula, and the fact that girls do more dance and gymnastics than boys inevitably restricts their MVPA engagement. Although unrecorded contextual factors may have contributed to this difference, it is also possible that the girls were less motivated than the boys to physically exert themselves. This view is supported by negative correlations reported between girls' Enjoyment and MVPA (Fairclough, 2003b). Moreover, there is evidence (Dickenson and Sparks, 1988; Goudas and Biddle, 1993) to suggest that some pupils, and girls in particular (Cockburn, 2001), may dislike overly exerting themselves during PE. Although physical activity is what makes PE unique from other school subjects, some girls may not see it as such an integral part of their PE experience. It is important that this perception is clearly recognized if lessons are to be seen as enjoyable and relevant, whilst at the same time contributing meaningfully to physical activity levels.

Girls tend to be habitually less active than boys and their levels of activity participation start to decline at an earlier age (Armstrong and Welsman, 1997). Therefore, the importance of PE for girls as a means of them experiencing regular health enhancing physical activity cannot be understated. Team games promoted the highest levels of MVPA and VPA. This concurs with data from previous investigations (Strand and Reeder, 1993; Stratton, 1996a, 1997; Fairclough, 2003a). Because these activities require the use of a significant proportion of muscle mass, the heart must maintain the oxygen demand by beating faster and increasing stroke volume. Moreover, as team games account for the majority of PE curriculum time (Fairclough and Stratton, 1997; Sport England, 2001), teachers may actually be more experienced and skilled at delivering quality lessons with minimal stationary waiting and instruction time. Similarly high levels of activity were observed during individual activities. With the exception of throwing and jumping themes during athletics lessons, the other individual activities (i.e. swimming, running, circuit/station work) involved simultaneous movement of the arms and legs over variable durations. MVPA and VPA were lowest during movement activities, which mirrored previous research involving dance and gymnastics (Stratton, 1997; Fairclough, 2003a). Furthermore, individual games provided less opportunity for activity than team games. The characteristics of movement activities and individual games respectively emphasize aesthetic appreciation and motor skill development. This can mean that opportunities to promote cardiorespiratory health may be less than in other activities. However, dance and gymnastics can develop flexibility, and muscular strength and endurance. Thus, these activities may be valuable to assist young people in meeting the HDA's secondary physical activity recommendation, which relates to muscular-skeletal health (Biddle et al., 1998). The question of whether PE can solely contribute to young people's cardiorespiratory fitness was clearly answered. The students engaged in small amounts of VPA (4.5 and 3.3 min per lesson for boys and girls, respectively). Combined with the limited frequency of curricular PE, these were insufficient durations for gains in cardiorespiratory fitness to occur (Armstrong and Welsman, 1997). Teachers who aim to increase students' cardiorespiratory fitness may deliver lessons focused exclusively on high intensity exercise, which can effectively increase HR (Baquet et al., 2002), but can sometimes be mundane and have questionable educational value. Such lessons may undermine other efforts to promote physical activity participation if they are not delivered within an enjoyable, educational and developmental context. It is clear that high intensity activity is not appropriate for all pupils, and so opportunities should be provided for them to be able to work at developmentally appropriate levels.

Students engaged in MVPA for around 18 min during the monitored PE lessons. This approximates a third of the recommended daily hour (Biddle et al., 1998). When PE activity is combined with other forms of physical activity support is lent to the premise that PE lessons can directly benefit young people's health status. Furthermore, for the very least active children who should initially aim to achieve 30 min of activity per day (Biddle et al., 1998), PE can provide the majority of this volume.

However, a major limitation to PE's utility as a vehicle for physical activity participation is the limited time allocated to it. The government's aspiration is for all students to receive 2 hours of PE per week (Department for Education and Employment/ Qualifications and Curriculum Authority, 1999), through curricular and extra-curricular activities. While some schools provide this volume of weekly PE, others are unable to achieve it (Sport England, 2001). The HDA recommend that young people strive to achieve 1 hour's physical activity each day through many forms, a prominent one of which is PE. The apparent disparity between recommended physical activity levels and limited curriculum PE time serves to highlight the complementary role that education, along with other agencies and voluntary organizations must play in providing young people with physical activity opportunities. Notwithstanding this, increasing the amount of PE curriculum time in schools would be a positive step in enabling the subject to meet its health-related goals. Furthermore, increased PE at the expense of time in more 'academic' subjects has been shown not to negatively affect academic

performance (Shephard, 1997; Sallis et al., 1999; Dwyer et al., 2001).

Physical educators are key personnel to help young people achieve physical activity goals. As well as their teaching role they are well placed to encourage out of school physical activity, help students become independent participants and inform them about initiatives in the community (McKenzie et al., 2000). Also, they can have a direct impact by promoting increased opportunities for physical activity within the school context. These could include activities before school (Strand et al., 1994), during recess (Scruggs et al., 2003), as well as more organized extra-curricular activities at lunchtime and after school. Using time in this way would complement PE's role by providing physical activity opportunities in a less structured and pedagogically constrained manner. This research measured student activity levels during 'typical', non-intensified PE lessons. In this sense it provided a representative picture of the frequency, intensity and duration of students' physical activity engagement during curricular PE. However, some factors should be considered when interpreting the findings. First, the data were cross-sectional and collected over a relatively short timeframe. Tracking students' activity levels over a number of PE activities may have allowed a more accurate account of how physical activity varies in different aspects of the curriculum. Second, monitoring a larger sample of students over more lessons may have enabled PE activities to be categorized into more homogenous groups. Third, monitoring lessons in schools from a wider geographical area may have enabled stronger generalization of the results. Fourth, it is possible that the PE lessons were taught differently, and that the students acted differently as a result of being monitored and having the researchers present during lessons. As this is impossible to determine, it is unknown how this might have affected the results. Fifth, HR telemetry does not provide any contextual information about the monitored lessons. Also, HR is subject to emotional and environmental factors when no physical activity is occurring. Future work should combine objective physical activity measurement with qualitative or quantitative methods of observation. During PE, students took part in health enhancing activity for around one third of the recommended 1-hour target (Biddle et al., 1998). PE obviously has potential to help meet this goal. However, on the basis of these data, combined with the weekly frequency of PE lessons, it is clear that PE can only do so much in supplementing young people's daily volume of physical activity. Students need to be taught appropriate skills, knowledge and understanding if they are to optimize their physical activity opportunities in PE. For improved MVPA levels to occur, health-enhancing activity needs to be recognized as an important element of lessons. PE may make a more significant contribution to young people's regular physical activity participation if lessons are planned and delivered with MVPA goals in mind.

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Physical Components Among The Selected Team Game Members

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Introduction :

The games under study are team games. In any game physical fitness is a basic requirement, unless the individual physically and mental fit his performance may not be upto the mark. The action of the motor components will reflect in the performance of the team it means an individual member with less physical fitness will result in the inferior performance of the teams.

Statement of the problem:

The purpose of this study was to compare selected physical components among the selected team game volleyball, basketball football and hockey players.

Delimitation:

- 1) The study was delimited to the selected physical components viz : muscular power, agility, muscular strength, muscular endurance, cardiovascular endurance, flexibility and speed.
- 2) Factors the study was delimited on selected team games of 20 male players of each game of volleyball, basketball, basketball and hockey.
- 3) Ranging between the age of 16 to 25 years.
- 4) The study is further delimited to the atleast participated in inter-collegiate tournament of Dr. Baba Saheb Ambedkar Marathwada University, Aurangabad.

Limitation :

- 1) No attempts is made by the researcher to test other areas of physical components then speed, strength, agility, flexibility, co-ordination endurance and power, because of the greater expenditure and more number of tester required to test all areas of physical components.
- 2) The selected areas of physical components were determined only by field tests that have already been standardized and not by all controlled and more accurate. Laboratory tests because of non-availability of required instrument.
- 3) Since the subjects choosen cause from different colleges of Dr. Baba Saheb Ambedkar Marathwada University, Aurangabad which are affiliated to university and they deferred in their routine life, habits and other environment factors which could not be controlled.

Objective of the study:

- If this study shows any significant difference in the physical components of volleyball, football, basketball and hockey players. The results of this study may be used to develop and improve the particular component of physical fitness in which the team is lacking.
- The findings of this study would add to the existing knowledge of physical educationalists, and useful to those involved in organization of sports and training to select individual who are more suited towards a particular sports according to level of physical components.
- The findings of this study may asserts in determining the degree and level of physical components required for volleyball, football, basketball and hockey players.

Hypothesis :

- To achieve the purpose the study it is hypothesized that there would not be any significant difference in the level of physical components between volleyball, football, basketball and hockey players.

Results :

Table
Team Games variability in physical components

Components	Score of variance	Sum of squares	Mean squares variance	F-value	Critical difference
Muscular Power	Between groups	1.70	5.68	12.53	0.199
	Within groups	3.44	4.53		
Agility	Between groups	5.73	1.912	6.23	0.518
	Within groups	23.31	3.67		
Muscular Strength	Between groups	57.65	9.22	1.91	2.970
	Within groups	765.1	10.07		
Cardiovascular Endurance	Between groups	4615	1538	0.31	657.63
	Within groups	3752	4937		
Flexibility	Between groups	5.00	1.00	1.80	0.09
	Within groups	7.07	1.00		
Speed	Between groups	1.29	4.03	3.46	0.33
	Within groups	9.46	1.02		

* Significant at 0.5 level Critical difference Scheffe's = 0.199.

Table shows that team game variability of group of volleyball, football, basketball and hockey in selected physical components. Whereas the muscular power 'F' value is 12.53, agility 0.5183, flexibility 1.80 and speed 3.46 are significant at 0.05 level of confidence with Scheffe's critical difference value of 0.119, 0.5183, 1.80 and 3.46 respectively.

Conclusions :

- Significant difference was found in selected factors of physical components volleyball, football, basketball and hockey.
- The volleyball, football, basketball and hockey groups were found relatively equal in leg strength, indicating leg strength equally importance for volleyball, football, basketball and hockey. The volleyball and basketball players might have developed this quality by frequent indulging in vigorous leg action of jump and football player require larger amount of leg strength to kick for distance. The hockey group scored lowest in leg strength as little vigorous leg action are involved except running.

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Sport Violence Of Fans In The Case Of Ethiopian's Football Premier League Clubs (Causes, Challenges And Potential Solutions)

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Abstract

Assessing the current level of football violence and suggesting possible solution is the main purpose of this research. Purposive sampling method has been employed to select a total of 300 respondents which includes 56 men Players from all sample football clubs, 19 Coaches and club officials, 16 federation officials, 19 fan association officials, 29 Journalist, 120 game attendant, 16 Referees and 25 football fans were included in the study. Descriptive survey research designs was employed for this study because it is believed that this types of research design is appropriate to cover large area of population and to assess the existing situation. Both qualitative and quantitative methods of data analysis were adopted. To collect the required information different data gathering instruments such as questionnaire, interview and field observation were used. The data gathered through questionnaire was handled by using statistics such as frequency, percentage, and mean whereas that of interview and field observation was described by using narrative approach. In this review, the author uses social problem and moral panic approaches to organize theories and research into fan violence. The social problem approach focuses on what causes the "problem" of fan violence. The moral panic approach focuses on how fan violence becomes translated into a social problem. Moral panics are rapid and righteous appeals from the media and other agents of control that "something must be done" to extinguish a social menace. It is argued that both the social problem and moral panic approaches signify the importance of "we group" versus "they-group" antagonisms in the creation and maintenance of fan violence. This paper focused on the causes of the failures of Ethiopians in creating understanding, tolerance, and respect for human dignity, development of moral values and social integration as a vehicle for creating peace among clubs. If clubs can achieve these qualities, then conflict can be minimized and national peace can be guaranteed. The influence of sports on character formation and social cohesion has direct bearing on peaceful attitudes. The development of emotional fitness, self-esteem, need for recognition, sense of belonging and feelings of anger, hostility and aggression are all met through participation in competitive sports. The sports environment starting with the athletes, coaches, umpires, spectators and vendors should all portray peace and act in a manner the peace can prevail. To prevent violence and achieve national peace, sport managers, handlers and enthusiasts must develop the capacity to detect conflicting situations among clubs and develop strategies in sports to deal with before it erupts. Key words: - abusive language, aggression, fans, offensive gestures, spectators, unethical behavior, violence

Introduction:

Sport is an international language that everybody can understand and a symbol of peace and security in its nature. Unlike these natures of Olympus, now a day in Ethiopia it becomes the sources of conflict among clubs of regions (tribal groups). Because of violence in football pitch like fighting, taunting, harassing, distracting or any other acts or behavior many people lose interests to attend the match and this incidents of violence at, before and after sports events have generated political, social, academic, and media debates; as well as the federation unable to collect income as usual. Sport violence in Ethiopia is commonly causes a group conflict among different races and took the lives of innocent citizens. It is known that Sport plays an important part in human development and in strengthening the fabric of

society; it fosters social integration and participation and thereby makes a valuable contribution to democracy; it promotes understanding between individuals and groups from different countries and cultures; it also brings major economic benefits at local, regional and national level. But all of this is put at risk by violence. That is why the issue of spectator violence is dealt with not only by the expert body of the Standing Committee but also by political bodies. The Parliamentary Assembly's of the Council of Europe Recommendation 1434 (1999), (as cited in Seid E.2018), on football hooliganism and the Committee of Ministers' Recommendation Rec(2001) on the prevention of racism and intolerance, in particular, should be mentioned. Most authors also agree that it should not be viewed as an isolated phenomenon requiring its own explanations, but rather should be studied in a wider social context. One of the most common explanations for violence in sport is linked to tolerance of it by participants, coaches, parents, spectators, officials and sport administrators. In recent years, however, violence in sport, both on and off the field, has come to be perceived as a social problem. In order to use sport to its nature and purpose unlike what happen in Ethiopia today, there is a need of researching the real causes of violence on both off-field and on-field situations.

GENERAL OBJECTIVE OF THE STUDY

To assess the current causes and effects of the sport violence in some selected football premier league clubs of Ethiopia and recommend the practicable solution to the problems.

SPECIFIC OBJECTIVES OF THE STUDY

The specific objectives of this study are: To assess critically the cause of fan violence and aggressions; To examine the potential challenges of violence; To find out the challenges faced to control the problem; To suggest some possible solutions to alleviate the problem. This study may have the following significance. It may create awareness on the degree of severity on football fan violence; It may identify the real causes of unsporting behavior and violence of football fans; It may deliver possible solution to the problems; It may pave the way to others for further investigation.

Materials And Methodology

This study was delimited to only some selected premier league clubs of Ethiopia. Even though, addressing all premier league clubs is important to assess and identify the cause, effect and the degree of the problem this study was focused on some selected clubs that found in Tigray (Mekelle 70 enderta), Amhara(Fasil Kenema), Oromiya(Adama Kenema), Addis Ababa(Buna & St.George) and Southern Nations and Nationalities Region(Sidama Buna & Dicha kenema) of the premier league participants of Ethiopia specially those who have large violent fans. Descriptive survey method was used. This method enables to gather a large variety of data related to the problems under the study from large population at a particular time. According to Cohen and Manion (1994) "Descriptive survey gather data at a particular point in time with the intention of describing the nature of existing conditions, or identifying standards against which existing conditions can be compared, or determining the relationships that exist between specific events." Therefore, the descriptive research method was used to collect reliable and valid data. For present research work, primary as well as secondary data was used. Various statistical tools were used to suggest and analyze the primary and secondary data. Primary sources of data was collected from Clubs officials, Football Federation Officials, football fans of the sample clubs, Football fans association, spectators, Sport Journalist, premier League Players and referees and Secondary sources of data was gathered from documents, books, journals, web and other research papers that are related to the study. The researcher was use Simple Random Sampling. To collect the data the tools include questionnaire, and review of documents. Totally 300 questionnaires based on the stated criteria was prepared and distributed. These data was analyzed, presented and interpreted in terms of simple tabulation percentage. A five point Liker scales ranging from strongly agree to strongly disagree was used to analyze and interpret the score rated by respondents.

Results And Discussion

Table 1. Causes for unsporting behavior and violence of fans

No.	Item	Percentages of Responses				
		SD	D	UD	A	SA
1	The time schedules of the league and the match	-	25.4	24.9	49.7	
2	Point difference among the clubs	24.9			75.1	
3	Players act or behavior				24.9	75.1
4	Biased or unfair decision of reefers'				50.3	49.7
5	The Attitude of wining at any cost				75.1	24.9
6	Taking too much alcohol before and during the game		10.9	25.4	-	64.7
7	Biased or unfair decision and the management style of the Federation			25.4	24.9	49.7
8	Interference of the government/politicians' interest			50.3	-	49.7
9	Home and away match		24.9	24.8	50.3	
10	Skills and commitments of sport managers in the area				46	54
11	The action and intent of security forces				30	70
12	Unemployment of fans				36	64
13	Service delivery systems at the stadium				26	74

As shown above in Table 1, on item 1 almost half of the respondents agree on the time of the schedule as a cause of violent acts and on item 2, 75% of the sample populations agree the point difference is the cause for violence in football fans. In items 3, 4, 5,10,11,12 and 13 all of the sample respondents agree and strongly agree the cause for sport violent includes players act, unfair decision of the referees, the attitude of winning at any cost of clubs, lack of skills and commitments of sport managers, the action and intent of security forces, unemployment of most fans and service delivery systems at the stadia respectively. In items 6,7,8and 9 most of the respondents agree and strongly agree taking alcohol, biased decision of the federation, political interferences and the place of match as a cause of unrest in Ethiopian football premier leagues respectively.

Table 2. Serious challenges of fans violence on the individual and on the society

No.	Item	Percentages of Responses				
		SD	D	UD	A	SA
1	Death			25.4	49.7	24.9
2	severe Injures				50.3	49.7
3	Mild Injuries				50.3	49.7
4	Material loss/economical crises				25.4	74.6
5	Insecurity and frustration					100
6	Players unable to use their potential fully				25.4	74.6
7	Inappropriate decision or Biasness of the referee				24.9	75.1
8	Decrease number of attendant or (the source of income decreases)			24.9	25.4	49.7
9	Losing its value and acceptance		24.9	24.9	25.4	24.9
10	Program fallacy (time schedule, year plan etc.)				53.3	49.7
11	Harassing, gesturing and insulting				50.3	49.7
12	Physical violence (fighting) and throwing objects				50.3	49.7
13	Disorder, riots and Property destruction				75.1	24.9
14	Swarming and Aggression				100	
15	Hooliganism				75.1	24.9

As shown above in Table 2, in almost in all items of the responses 100% of the challenges in Ethiopian football fans' violence includes death, injuries, economical crises, frustration, wrong decision, program fallacy, different harassments, riots, swarming and a symptom of hooliganism are the major current challenges of the sport. With the witness of the researcher, among the challenges in Ethiopia, sport arenas especially football become the biggest place at which political protests are held contrary to its nature and worldwide aims because of lack of political freedom to be gathered and express ideas in other right places. Therefore lack of political freedom is the major cause which have an impact on the lives of the society.

CONCLUSION

This study presents findings from the Data gathered from target samples and literature review on the factors which may drive violent and antisocial behaviour in football fans in Ethiopia. These include:

- The influence of alcohol, which the evidence suggests may be a contributing factor to such behaviour, although the causal relationship between alcohol and hooliganism is unclear.
- Internal and external or relational psychological factors, such as rushes of adrenaline and a sense of meaning gained through these behaviours, and capacity to self-regulate emotions.
- Sporting rivalries, which have been shown to increase aggression in fans.
- Socio-political factors, such as unemployment, repression by state agents and ethnic-nationality tensions.
- Spatial factors, particularly given that large numbers of football fans may travel to a football tournament host city without the intention of attending a match, but rather will congregate in public spaces and fan zones.
- Situational and atmosphere-related factors including the day of the week on which the match is held, the match venue, the kick-off time, crowd size and the size of support groups in attendance.
- Reaction to play, for example a team's performance on the pitch and their style of play, as well as fans' expectations of their team. It is important to acknowledge, however, that while the identified studies consider specific factors driving fan behavior, the available evidence supports the notion that no single factor can be found to be responsible for violent or antisocial behaviour by fans at football events. Rather, multiple factors are often in play simultaneously.

RECOMMENDATIONS

- Democratic rights of the citizens should be proved so that they enable to express their ideology difference in the right place. Sport should be free from political difference and racism,
- Management should make fundamental penalty revisions so that rule-violating behavior results in punishments that have greater punitive value than potential reinforcement.
- Management must ensure proper coaching of teams, particularly at junior levels, which emphasizes a fair play code-of-conduct among all participants.
- Management should ban the use of alcoholic beverages at sporting events.
- Management must make sure facilities are adequate regarding catering and spacing needs and the provision of modern amenities.
- The media must place in proper perspective the isolated incidents of aggression that occur in sport rather than making them "highlights."
- The media should promote a campaign to decrease violence and hostile aggression in sport which will also involve the participation and commitment of athletes, coaches, management, officials, and spectators.
- Coaches, managers, athletes, media, officials, and authority figures (i.e., police) should take part in workshops on aggression and violence to ensure they understand the topic of aggression, why it occurs, the cost of aggressive acts, and how aggressive behavior can be controlled.
- Coaches, managers, officials, and the media should encourage athletes to engage in prosocial behavior and punish those who perform acts of hostility.
- Athletes should take part in programs aimed at helping them reduce behavioral tendencies toward aggression. The tightening of rules, imposing of harsher penalties, and changing of reinforcement patterns are only part of the answer to inhibiting aggression in sport. Ultimately, the athlete must assume responsibility for his or her behavior.

Impact Of Aggression Will To Win Among Tennis Players

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Introduction :

The relevance of aggression in tennis players has been traditionally centered around the usefulness of sport in providing an outlet for aggression and there by, in part controlling violence in our society. States this view point by relieving that “the main function of sports today lies in the cathartic discharge of aggressive urge”. Will to win is defined as the extent to which a person desires to reach some standard of excellence or to defeat an opponent. Individual high in will to win should be very competitive and should feel that wining is the major reason for competing.

Methodology : The present investigation pertaining to Aggressive Behaviour will to win is in the frame work of ex-post factor research.

Sample :

The total sample consists of 200 tennis players and age level ranging from 19 – 25 were selected.

Table – 1

Sex	Aggression	Will to wing	Total
Male	50	50	100
Female	50	50	100
Total	100	100	200

Tools : Aggressive behaviour (Duss Burke) Will to win (A. Kumar)

Objectives : To know the effect of will to win and aggression among the tennis players. To know the correlation of will to win and aggression among the tennis players.

Hypothesis : The tennis players of high aggression are high in will to win whereas sportsmen of low aggression are low in will to win. There is a correlation among the will to win and aggressive behavior of the tennis players.

Analysis of data :

Table – 2 Showing mean, SD and the correlation between sex and aggressive behaviour of male and female tennis players.

Variable	Aggressive behaviour tennis players (Male)	Aggressive behaviour tennis players (Female)
Mean	5.86	5.76
SD	1.36	1.57
t-value	0.29*	

* Significant at 0.05 level.

Table demonstrate the mean SD and correlation of aggressive behavior of male and female tennis players. The male tennis players have scored the mean score of 5.86 on aggressive behavior, whereas the female tennis players are having the mean score of 5.76. Both the male and female tennis players have same level of aggressive behavior. The 'r' value of sex an aggressive behavior is 0.29 signifies that there is significant correlation between the sex and the aggressive behavior of the male and female tennis players.

Table – 3 Showing mean, SD and the correlation between sex and will to win of male and female tennis players.

Variable	Will to win tennis players (Male)	Will to win tennis players (Female)
Mean	4.59	4.16
SD	0.88	1.42
t-value	0.018	

* Significant at 0.05 level.

Table demonstrate the mean SD and correlation of aggressive behavior of male and female tennis players. The male tennis players have scored the mean score of 4.59 on will to win, whereas the female tennis players are having the mean score of 4.16. Both the male and female tennis players have same level of will to win. The 'r' value of sex an will to win is 0.018 signifies that there is significant correlation between the sex and the will to win of the male and female tennis players.

Conclusions :

1. The male and female tennis players are found to have the same level of aggression and hence, significant difference of aggressive behavior is found between them.
2. The sex is having significant influence on the will to win between male and female tennis players.

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Use Of Information And Communication Technology (ICT) In Physical Education

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Abstract

With the continuous development of information technology more and more fields have used the technology to promote the development of the industry, which included physical educational field. At the present stage, many colleges all introduce information technology in to the physical education. The technology in teaching marks the class content more abundant. In the mean while it relives teachers work load to large extent, and improves student s studying enthusiasm. At present, college physical education curriculum has started to introduce advanced information education technology. This paper mainly analysis the specific application of information technology in physical education. One of the most vital contributions of ICT in the field of physical education is easy access to learning resources. This paper is an attempt to show the effective use of ICT in physical Education.**Key Words:** ICT & Physical Education...

INTRODUCTION

Experience is said to be a great teacher. This experience may be gained by the learner through direct and indirect means. Direct access to the source for gaining first-hand experience is neither always possible nor desirable. Consequently, most of our learning is based on second hand experience in the form of information received by us about the objects, places, persons, ideas or events. This information provides a base for our knowledge and understanding about them and the environment surrounding them. For this purpose, the learner must be able to learn the art of getting information, store and make its use as and when desired. Such type of activities are said to be the part and parcel of information technology (IT). However, the use as well as access to the information remains incomplete without the involvement of the art of communication. Communication as a two-way process stands for the sharing of ideas, thoughts, beliefs and information, with others. The mutual sharing between the source and receiver of the information, thus, tends to add in its increase, understanding and use that ultimately help in building up knowledge. In this way, both information and communication are utmost needed in acquiring knowledge and getting involved on the knowledge-acquiring process. Now, the efficiency and effectiveness in the activities selected to information and communication is availed from information and communication technology or ICT.

It was found that information and communication technology is an important instrument that can transfer the present isolated, teacher centered and book centered learning environment into student centered environment and the author avers that ICT can change the traditional concept of learning process. They conclude that ICT helps in the professional development of teaching and learning and individuals involved in the programs of teacher physical education. It can be infused in the learning process so as to acquire the knowledge and skill efficiency. ICT provides access to resources so that teachers, can apply new knowledge and skills they have learnt. Communication technology will be able to develop the capacity of the teacher and teacher educator and at the same time can strengthen the capacity of teacher physical educator, which is the fundamental requirement of effective transactional strategy.

Learning takes place everywhere at all times. Learning is a process in which individual, group and communities internalize and reconstruct their own knowledge. It is described by the UNESCO'S Four Pillars of physical Education: learning to know, learning to do, learning to live together and learning to be.

Learning knows: creating knowledge base. Learning is doing: developing skills, competencies and capabilities. Learning is living together: developing attitudes, values and approaches essential for living, working, creating, organizing, managing, caring and sharing. Learning is being: continuously evolving, liberating, elevating individuals to higher levels of achievements.

The systems of physical education have been evolved and classified into formal education (face-to-face and highly structured instruction), non-formal education (open and but structured instruction) and informal education (incidental and unstructured instruction).

CREATING A NEW EDUCATION SYSTEM:

As the current trend moves towards greater emphasis on ICT-driven development and on shaping a knowledge society, it is time to pause and consider the modalities to achieve equitable allocation of ICT resources to serve the physical education communities. The scope of ICT is very broad and could have far-reaching impact — both enabling and disabling. As in every resource-allocation process, the pragmatic approach should be one of maximizing the enabling impact for most and minimizing the adverse impact — the max-min principle. A commitment in applying this max-min principle is that it should apply the rules of equality and equity. The objective should be to maximize the enabling impact among those who are often overlooked as clients for development service and inputs, namely rural communities, populations in remote locations and rural women and girls. With the growing awareness about information and communication technologies (ICT), physical education has delivered a higher degree of quality and credibility in terms of pedagogy. This has led to a larger number of people opting for courses/specializations through this mode of learning, as it adds value to their profile and gives wider scope for career progress. Therefore it can be said that learning is a form of planned learning that provides learning opportunities aimed at limiting the constraints of time/place/pace. It enables learners to become independent and critical thinkers, and to attain their physical educational goals.

SPECIAL EMPHASIS ON RURAL AREAS:

Our focus should be on -learning resources as the means to achieve the objective of accelerating the advancement of rural people through innovative physical educational programmers. The potential for hastening the access to learning is improved through the greater availability of ICT resources. This consultation will explore the opportunities and constraints to employ the -learning resources to reduce the social and physical which isolates rural people and which impairs their access to leaning opportunities.

The consultation can review the application of ICT as a potential tool to provide physical education in order to reduce the knowledge and information gap among rural people. Technology is not the master, but a potential tool for development. The focus is on rural human resource development. The quality and relevance of physical educational resources and learning achievement among rural clients comes first. Appropriate ICT will facilitate the national efforts made to achieve faster and timely educational delivery and to improve the learning process.

ROLE OF ICT IN LEARNING:

As the internet penetration increases, e-learning systems are establishing themselves, as the new and viable mode of teaching and learning. The boundary between the “real and “virtual” environment is slowly beginning to fade with the new-age technology tools, which make online learning an enriching process. Some of the other features and props of ICT, which helps in furthering the prospects of learning, are:

- 1) Virtual class room: With the many advancements made in information and communication technology, physical education universities of repute have deployed e-learning systems, which recreate a real-time classroom set-up.
- 2) Technology-props for the disabled: The mass-reach initiative of learning has gone a step further, with technology props being implemented in online learning systems for the visually/hearing impaired/physically disabled. Yet again, online learning breaks the barriers for those aspirants who have the knowledge potential for higher studies but don't have the means to use that potential for lack of support, flexibility or eligibility in the physical education system.

- 3) 24*7 accesses: The internet or the online mode operates 24*7. Ensuring anywhere, anytime connectivity, students can study at their convenient time by simply logging into the learning university's online interface. Wherever they are, they just need a device and internet connectivity to study and learn.
- 4) Quality: The online medium thrives on the quality factor. With the growing numbers of internet users, one factor, which will connect them with the brand, is Quality. The same applies to the education universities deploying programs in the online mode. Students opting for learning programs look for quality courseware, which are: comprehensive, industry-relevant, and creditable for the current job-scenario.
- 5) Global pool of knowledge. The ICT overrides the barriers of time and geographical boundaries. There is world wide connectivity to a vast pool of knowledge resources. Be it references for studying or interacting with knowledge experts, the online interface facilitates these activities, as there is no physical presence demanded from either the student's or the expert's end.
- 6) Employability: With the growing quality and credibility in learning programs, learning programs are edging closer to their campus counterparts. Apart from technical skills, soft-skills training are integrated with the programs to ensure all-round development of students. The online interface facilitates access to programs or seminars conducted in any part of the world, through the university's privileged access mode. More so, the university can also call in experts to conduct training sessions at their convenient time and later, make it available to its students.
- 7) Web-enabled, internet connectivity scaled-up: The ICT has evolved with the internet technologies to make connectivity go global. It is not just the PCs, desktops or laptops, which support internet connectivity. Mobile phones/gadgets also, with a wide and affordable cost-range support wireless internet. With the result, e-learning is slowly diffusing into mobile learning, which adds up to the flexibility factor of physical education. E-learning systems are being implemented keeping the mobile-interface in mind as well.
- 8) Offline study: Video lectures, seminars relating to academic and non-academic can be made available to students, in ready and easy downloadable formats, thanks to the compatible versions of software, which have been put in place for the same. Those who are not able or cannot schedule to their convenience to watch live video demos, can download them for later browsing.
- 9) The online connect with the student: Students demand greater accountability from the university, they are studying from. The student's academic progress and the subsequent career goal are all as much the university's commitment as it is the student's. It is no longer the "left to fetch" scenario, in physical education, where from learning to achieving, it is the student's Endeavour alone. Established education universities keep a live interface with the students through the online medium. Continuous assessments, periodic assignments, online trackers and projects help the student and the university tracks their academic progress.
- 10) Career-progress: learning enables studying while staying on job. Working professionals eager for skills-upgrade, for better designation and career growth can enroll for physical education programs. The online platform helps to strike the right balance between office, home and work priorities, as this mode of study can be used, anywhere, anytime. There is parallel growth in skills and work experience in the physical education mode of study.

The different attributes of ICT, as mentioned above, are focused on making online learning a richer and value-added experience, to draw in more students to this mode of learning and help them gain the skills and experience to cater to India's vast growth potential.

Some examples of the use of ICT in the education program are as follows:

1. Education Satellite of India (EduSat) launched by Indian Space Research Organization (ISRO) would help in creating distributed class rooms and network of schools and higher education institutions for offering quality education to all. IGNOU is leading the utilization of EduSat and creation of National and Regional Networks with missionary zeal. Education has reached each TV home in the country.
2. Establishment of a private company for profit by the State Government and Universities in Maharashtra for developing new paradigms and fast changes in education and for avoiding digital divide(MKCL:www.mkcl.org).

3. Development of consortium for L3 (Life-long-learning) farmers and teachers in India for bringing about systematic transformation in farming and school education for development.
4. Group learning and developing: Prayog Pariwar (Experimenting Groups) or Swadhyaya Pariwar (Self-study Groups) has shown remarkable achievements, in individuals as well as group learning, developing and creating local specific knowledge and services.

CONCLUSION

The role and the use of the Information and Communication Technology (ICT) in Learning is a proven fact now. The physical education system responded positively and quickly to the revolution in ICT. It is because of three reasons – the need to reduce the cost of imparting physical education, to introduce need based educational programmers to a large number of people and to reduce time required for sanctioning new programmers by adopting new flexible nature of administration. The new ICT tools have the potential to transform the nature of physical education where and how learning takes place, and the roles of students and teachers in the learning process.

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The Effect Of Explosive Power, Flexibility And Speed Training On Long Jump Performance: The Case Of Burayu Town Athletics Club

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Abstract:

The purpose of the study was to see the effect of explosive power, flexibility and speed training on long jump performance: in the case of Burayu Town Athletics Club. The parallel true experimental research design was used in this study. For this study, all 16 long jumper athletes were considered as a sample with 12 males and 4 females by using stratification sampling technique. Among 16 athletes, 8 of them were experimental group (EG, n=8) while the others 8 were considered as the control group (CG, n=8) using simple random sampling technique. The age of subjects was ranged from 21-25. The EG of the study received a supervised training program for 12 weeks and 3 day per weeks for 60 – 65 minute per session and CG did not receive the additional training which was designed for this study. The variables selected for the purpose of this study were: explosive power, flexibility & speed. The tests were explosive leg power test (ELP), sit and reach test (SRT) and 30 meter shuttle run test (30m SP) respectively. Tests were taken two times at pre-test and post training. The collected data were analyzed by paired sample T-test and also Independent sample T-test statistical methods by using SPSS software version 21 with all at level of significance 0.05. The paired t-test revealed that, the pre-post-test performance of EG were significantly improved in all variables than the CG, at the level of significance ($p < 0.05$); similarly the independent sample t-test showed that the post-test performance of EG were significantly more improved than CG group tests. After 12 weeks of training intervention, the experimental group revealed that a significant improvement of ELP ($P=0.000$, Mean=7.988), SRT ($P=0.007$, mean=7.250) and 30m SP ($P=0.009$, Mean= -.161), PLJ ($P=0.006$, Mean=0.126) were changed significantly ($p < 0.05$). The present study indicated that 12-weeks of well-designed physical fitness training enhanced the performance of long jumper athletes. Therefore, scientific based training should be incorporated in the long jump training program in order to maximize the ability of the athletes.

Keywords: Explosive power, Flexibility and Speed training, Long jump

Background

Explosive power, flexibility and speed training has been a very popular training technique used by many coaches and training experts to improve the performance of long jump athletes. However; to the researcher knowledge in Ethiopian scientific based training on the above mentioned variables are not fully implemented and observed. The long jump is a kind of track and field event. Also, it has been a standard event in modern Olympic Games. Athletes have to use their strength, skills and effort to make distance as far as possible from a jumping point. To any Sport that requires powerful, propulsive movements, such as football, volleyball, sprinting, High Jump, Long Jump and Basketball, the application of Explosive Power, Flexibility and speed training is applicable (Kamnardsiriaet al., 2015 & McArdle et al., 2001).

The long jump is one of the natural but technically complex disciplines of athletics. To be successful in the long jump event, the long jumper must have the ability of a sprinter so that it can reach a sufficient speed in the approach run. One of the most important factors affecting performance in the long jump is the speed of the approach run (Bagci, E., 2010&Theodorou *et al.*, 2017).

Additional significant factor determining the jump distance in a long jump is the vertical movement of the horizontal velocity of the center of gravity of the body via the approach run applied at high speed, at the instant of landing at the take-off board (Bagci, E., 2010&Koyama *et al.*, 2006). The sit and reach test is one of the most frequently used tests of flexibility in influential physical fitness parameters. Studies have revealed that the sit and reach test can be used to measure the strength of the agonist muscle group and to determine the flexibility resistance of antagonist muscles (Bagci, E., 2010&Carrasco *Met al.*, 2013). The literature reveals that Long jump athletes running speed can be improved following several types of training interventions such as sprints training, towing, over speed and specific polymeric exercises. Over all this study is intended to find out the integrated the effects of explosive power, flexibility and speed training on the performance of long jump athlete's trainees in parallel with their regular training program.

Statements of the Problem

The ultimate goal of designing and practicing any sport training program is to improve the physical and physiological performance of trainee. Naturally, the trainees have their own innate performance which they get genetically from their ancestors to practice the sport activities. But the key problem here is, arranging and implement scientific based training programs that relevant with the over status of trainees to cultivate their natural talent and ability.

Different previous studies observed the effects of explosive power, flexibility and speed training on the performance of long jump athletes separately. For example a Studies by (Bridgett LA & Linthorne NP, 2006), revealed that the distance a long jumper can jump is influenced by the speed of the approach run. The conversion of this speed to forward -upward force at the takeoff, the range through which he can apply this forces at an optimum angle and the efficiency with which these factors terminate at the landing in the pit. But the study was limited to the speed training without go further for other basic factors for the improvement of long jump that the researcher going to address.

On the other regard, there are limited studies conducted to measure the effects of flexibility and speed on the long jump jointly (Skaggs, Jamie R. *et al.* 2015). However, the study has missed the influential factor (explosive leg power) which is used to examine the athletes' muscular leg power particularly the lower muscles. Thus, with this study the researcher was intend to include the influential variable so that to easily identify how the joint effects of the variables have changed the status long jump. Besides, those previous study had not used statistical tests rather than correlation. Therefore, since it is not possible to answer research questions without using statistical models, the study has basic gaps to be filled. Hence, with this study the researcher used t-test to determine the significance of the independent variables in determining the outcome variable.

The fundamental reason to give training on Explosive Power, Flexibility and speed training exercises are specifically to reduce the ground contact time that an athlete spends when running or jumping. This reduced as the athlete matures, gets stronger, and practices the skills of their performance competition. Not only this, the other important feature of the Explosive Power, Flexibility and speed training exercise were the conditioning of the neuromuscular system to allow for faster and more powerful muscular response during and movement activities (Markovic, G., Jukic, I., Milanovic, D., & Metiko, D. 2007). There is no doubt regarding the contribution of all this component brought about better performance on the part of the long jump athletes. However, although the other physical fitness training can determine the status of long jump, those three methods designed to use in this study are the basic and enhancing the ability of the muscle groups to respond more quickly and powerfully to slight and rapid changes in muscular length on the long jumper.

Objective of the Study

General Objective

The general objective of this study was to evaluate the effects of explosive power, flexibility and speed training on long jump performance: in the case of Burayu town athletics club.

Specific Objectives

The Specific Objectives of the study were:

To identify whether statistically significance difference exist or not between the experimental and control group regard to explosive power.

To examine the presence of statistically significance difference between the experimental and control group regard to flexibility.

To determine the statistically significance difference between the experimental and control group regard to speed training.

To examine the presence of statistically significance difference between the experimental and control group regard to long jump performance.

The Significance of the Study

To be effective and productive practically, Burayu athletics clubs are needed to be fit and good performer physically and mentally. If that so, explosive power, flexibility and speed training exercise were a means and good intervention in order to come across the effect on the performance of long jumper athletes. The main significance of this study was to investigate the effect of 12 weeks explosive power, flexibility and speed training on long jump performance: in the case of Burayu town athletics club. Even though this physical fitness training is used for many years, Burayu Athletics club was the first to use from these research study; but it does not mean that the outcome of this research is only restricted to Burayu town athletics club. It also helps other the club of Athletics in Ethiopia. After the output for the athletes, the coach and other concerned individuals to be included or excluded from their training, lastly the importance of the study is to aware all the long Jumper athletes that the selected explosive power, flexibility and speed training is the major strategy for affecting the performance of long jumper athletes either positively or negatively.

Methods

Research design

This study is applied parallel true experimental research design for 12 weeks to implement scientific based training and to see the effect of explosive power, flexibility and speed training on long jump performance: in the case of Burayu town athletics club.

1.1. Source of Data

The researcher used primary data source. Primary data was from the athletes who received pre-test and post-test measurements at the field and gym according to the scheduled training program for 12 weeks.

1.2. Population of the Study

The target populations of the study were long jumper athletes in Burayu Town Athletics club. All the 16 long jumper athletes registered under the club was consider for our study. Among this 12 male and 4 female sex groups with the age range from 21-25 was the target population of study.

1.3. Sample and sampling techniques

The sampling technique used to select the athletics club was the non-probability sampling technique called purposive sampling. The reason for selection of this club was since the area was quit manageable, affordable, interest of athletes in the club and short distance for the investigators which was very useful for the supervision. For this study, all the 16 long jumper athletes in Burayu town athletics club are considered; since the study is experimental and due to small sample size. Thus, the total population is considered as sample. To consider the impact of gender on long jumpers' performance, the researcher was used stratification sampling techniques. Hence, the male was considers as strata 1 and the female long jumpers assigns as strata 2 for the study under consideration. To categorize 16 athletes into experimental and control group, the researcher used simple random sampling so that to assign the 12 male and 4 female athletes into two equal parts separately. Then, 8 of them were experimental group; while the others 8 were considered as the control group with 6 male and 2 female for both groups.

1.4. Inclusive and exclusive criteria

Subjects who fulfilled the health history and physical readiness questionnaire requirements were selected and participated in this study. Individuals who are free from acute or chronic disease and not having current physical and mental injury were included whereas the subjects contrary to the above criteria were excluded from the study.

1.5. Methods and procedures of data collection

Quantitative data was collected through the selected appropriate physical fitness test with appropriate measurement of selected variables(Ashok, C, 2008). The variables for the physical fitness tests used for this study were Vertical Jump test (Centimeters) to measure Explosive leg power, 30meter speed tests (seconds) to measure speed, and Lastly Sit and reach test (centimeter) was used to measure flexibility. The data was recorded by the three data recorders who have been trained and oriented with how to collect data of Pre-test and posttest after training were completed. The researcher used the Soccer field, Athletics track and gymnasium as a study site. Cones, stopwatch, chalk or marker, football, whistles, table, bench, camera, laptop, mobile, treadmill, bicycle, ride, and rope for skipping is some of the material and facilities expected to use in the training session as well as during the test.

1.6. General Training protocol

The training program is to improve the performance of long jumper athletes of Burayu town athletics club. The training program was given to the subjects for 12weeks with three times a week (Tuesday, Thursday and Friday). The session begun with 8-10 minute general and specific warming up period, followed by main work out for 60-65 minutes of low to moderate intensity selected Exercise; then the session last up with 6-8 minute cooling down activities. For the six weeks and then, the selected long jumping exercises increased to high intensity exercises slowly for the last six weeks. According to (Marković *et al.*, 2007; Villarreal *et al.*, 2009), 8 to 12 weeks of training program is essential to maximize individuals' abilities. The training program was scheduled for the participants and the exercises training were given by the researcher and his assistants.

1.7. Methods of Data Analysis

The collected data was analyzed by using descriptive statistics and inferential statistics. Descriptive statistics involves; mean, standard deviation, frequency distribution and graphics in to meaningful ideas using by SPSS Version 20 software to the selected physical fitness observed in the participants. Inferential statistics includes Paired T-test was used to observe within-group difference from pre-test to post test result for both experimental and control group. The results of the study were analyzed by an independent samples t-test to compare the selected physical fitness variables between the control group and experimental group. The level of significance was 0.05.

2. Results

Table 1. The Mean And Standard Deviation Values Of The Experimental Group Of Long Jumper Athlete.

Variables	Groups	Pre-test	Post-test	MD	P-Value
Explosive leg power (cm)	EG	52.56±3.17	58.98±2.62	6.72	0.01
Flexibility (cm)	EG	18.12±5.52	25.50±4.65	7.38	0.00
Speed (sec)	EG	4.37±0.09	4.07±0.07	0.3	0.00
Long jump performance	EG	6.20±0.26	6.36±0.18	0.16	0.00

Key: values are mean ± SD, VJ =Explosive leg power, Flexibility = Sit and reach, SP = Speed. PT = Pre Training test, PT = Post training test, EG=Experimental group, MD=Mean Difference

Table 2. The Mean And Standard Deviation Values Of The Three Variables Control Group Of Long Jumper Athlete Of Burayu Town Athletics Club.

Variables	Groups	Pre-test	Post-test	MD	P-Value
Explosive leg power (cm)	CG	49.52±4.6	51.00±3.8	1.48	0.037
Flexibility (cm)	CG	16.50±4.34	18.25±4.59	1.75	0.004
Speed (sec)	CG	4.44±0.19	4.23±0.11	0.21	0.057
Performance Long Jump (m)	CG	6.21±0.24	6.24±0.20	0.027	0.35

Key: values are mean ± SD, VJ =Explosive leg power, Flexibility = Sit and reach, SP = Speed. PT = Pre Training test, PT = Post training test, CG = Control group, MD, Mean Difference

Table 3. The results of **Independent t-test for pre and post** training program arranged for study group of experimental and control groups.

Variables	Independent T-test control and experimental group under pre-test					Independent T-test control and experimental group under post-test				
	T	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference		T	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper				Lower	Upper
ELP	-1.526	.149	-3.039	-7.311	1.23	4.814	.000	7.988	4.429	11.546
S&R	-.653	.524	-1.625	-6.963	3.713	3.135	.007	7.250	2.290	12.210
SP	1.035	.318	.075	-.080	.230	-3.025	.009	-.161	-.276	-.047
PLJ	.070	.776	.008	-.260	.278	1.298	.006	5.89	-.082	.335

Key: ELP =Explosive leg power, S&R = Sit and reach, SP = Speed. PT = Pre Training test, PT= Post training test, EG=Experimental group, CG= Control group, MD=Mean Difference, PLJ=Performance of long jumper.

4. Discussion

The major focus of this study was to implement scientific based training and to see the selected type of exercise on explosive leg power, flexibility and speed training on enhancing performance of long jumper athletes among Burayu town athletics club. Each exercise has its own objective on how to enhance the performance of long jumper athletes among the teams. The current study generated three significant findings. The parameters selected for this study was explosive leg power, flexibility and speed training. In this discussion section the main findings of this study was that integrating Explosive power, Flexibility and speed training exercise with the regular training program of Long jumper trainees for 12 weeks brings significant improvement on their related physical fitness and physiological variables. As it was presented in tables-1, the three physical fitness abilities showed significant change in the experimental groups. However, significant change was also observed in control groups which is encouraging due to the general training exercises; but the speed test has no significant changes within a group. Thus, it is possible to conclude that performance of long jumper abilities can be maximized through well-structured selected exercise training.

The analysis for the independent t-test summarized under table 3 also indicated that there is significance improvement of Experimental group on all the variables under study. Beside to this, the results also elaborate as the independent t-tests were applied to analyze the significance improvement of explosive leg power, sit and reach test and 30m shuttle run of Experimental group and control group after the Experimental group has completed their training program. Then, the mean value of test results also certified that of all variables under this study of Experimental group significantly is improved than the Control group which strengthens the paired t-test results. Thus, the separate results of all the variables were discussed as here below.

4.1. Discussion on Explosive leg Power

To see the significance of the training, the researcher has conducted the 12 weeks of intervention training for the experimental groups. Hence, the summary results of table 1 indicated that the training has statistically significant change on the explosive leg power of the long jumper and this is certified since the p-value ($0.01 < \alpha = 0.05$). Besides, the independent t-test presented under table 3 also supported that there was statistically significant improvement on the comparison of experimental groups and control groups under post-test than the corresponding pre-test. Using statistical decision rule, since the p-value of the comparison under pre-test is 0.149 which is far greater than the level of significance (0.05), there is no enough evidence to say that there was difference in explosive leg power between experimental and control groups. However, using the same test, since the p-value for the explosive leg power under post-test which is 0.00 is less than the level of significance (0.05); the researcher has enough evidence to say that there was a significant change in the experimental groups than that of the control groups.

The study by Markovic G *et al.*, (2007) had done a meta-analytical review on “Does plyometric training improve vertical jump height?” The result of the study showed that Plyometric training provides both statistically significant and practically relevant improvement in vertical jump height. Likewise, the same implication with the results the researchers obtained in this study that the 12 weeks of training interventions have both statistically significant and practically relevant improvement in explosive leg power.

The study by Bourgase (2012) indicated that explosive training is used to develop power of an athlete. This implies that explosive power is consider being the combination of strength and speed. The researcher also stressed that the combination of strength and speed training are important to increase the performance levels especially explosive power of athletes. Likewise, the results of this study also indicated that there was significant change on explosive leg power after the 12 weeks training interventions.

EskandarTaheriet *al.* (2014) Conducted the study on the Effect of 8 weeks of plyometric and resistance training on agility, speed and explosive power in soccer players. At baseline and after training all participants were tested on theagility, speed, and explosive power in plyometric training group, agility and explosive power in resistance training group were significantly improved in post-test compared to pre-test. Between-groups comparison showed better records in agility, speed and explosive power for plyometric compared with resistance training group after eight weeks. Since explosive leg power was significant under both plyometric and resistance training groups, it was quit consistent with the results presented so far throughout this paper of the same variable.

4.2. Discussion on Flexibility

In order to identify whether the training has significant changes on the flexibility of the long jumper athletes, the researcher has conducted the 12 weeks intervention training for the athletes. Considering the outcome of the Flexibility test of the experimental group, it was obvious that the Flexibility of experimental group was significantly raised in the post-test. Thus since the p-value of this variable which is 0.00 is less than the level of significance, the 12 weeks of physical fitness training had significant effect on increasing the flexibility of long jumper athletes.

Besides, the independent t-test presented under table 3 also supported that there was statistically significant improvement on the comparison of experimental groups and control groups under post-test than the corresponding pre-test. Using statistical decision rule, since the p-value of the comparison under pre-test is 0.524 which is far greater than the level of significance (0.05), there is not enough evidence to say that there was difference in flexibility between experimental and control groups of the long jumper athletes. However, using the same test, since the p-value for the flexibility under post-test which is 0.007 is less than the level of significance (0.05), the researcher has enough evidence to say that there was significant changes in the experimental groups than that of the control groups.

The study conducted by G Baltacı *et al.* (2014) on the comparison of three different sit and reach tests for measurement of hamstring flexibility in female university students indicated that the back saver sit and reach test produces reasonably accurate and stable measures of hamstring flexibility. Moreover, it appears that this test is a safe and acceptable to measure of hamstring flexibility in young women. Likewise, this result was consistent with our research study. This is for the reason that the 12 weeks physical training had significant change in improving the flexibility of long jumper athletes.

Barbosa A. *et al.* (2002) conducted the study on the Effects of resistance training on the sit-and-reach test in elderly women. The study considered 19 respondents trained for the intervention of 10 weeks. Then, the researcher randomly assigned experimental group and control groups as 11 and 8 respectively. At baseline and after training all participants were tested on the sit and reach test. The training program resulted in significant increase ($p < 0.001$) of flexibility in elderly women. No significant differences were found in the control group. Likewise, this result was consistent with our research study that there was improvement on the experimental group of those took 12 weeks of intervention with sit and reach test of flexibility.

4. 3 Discussion on Speed training

The results showed that the 12 weeks of training interventions given for the experimental groups had statistically significant effects on increasing speed; this is since the p-value is less than the level of significance ($0.00 < 0.05$).

The mean difference revealed that there was an improvement in the performance of fitness parameter due to the exercise in which they were engaged in. The mean value of 30 meter shuttle run of speed study units were increased from pre to post test, in pre-test performance was 4.37 sec but after 12 weeks of training it recorded as 4.07 sec. This is due to the p-value under pre-test is 0.318 is greater than level of significance (0.05), it was an indicator that there was no difference in the speed of long jumper athletes of experimental and control groups. Despite, since the p-value for the post is 0.009 is less than the corresponding level of significance (0.05), the researcher can conclude that there were statistically significant changes in the speed of the long jumper athletes after they took intervention training.

Thus, the results obtained in this study were consistent with the existed research study. Saunders *et al.*, (2006) performed a study on "Short-term plyometric training improves Running economy in highly trained middle and long distance runners". Short-term plyometric training showed no significant difference in cardio respiratory measures or VO₂max in plyometric group. But result showed improvement in running economy like what the results of this paper indicated, with likely mechanisms residing in the muscle, or alternatively by improving running mechanics. The results showed that eight weeks of plyometric training had significant effects on speed records reduction. Hence, the study has the same positive implication with the results obtained above that it indicated as the training intervention can change the performance of the long jumper athletes. Similarly, the results of the study were consistent with Mohebi *et al* (2012).

In many studies it was demonstrated that physical fitness exercises are very beneficial methods. Especially when physical fitness exercises are combined with speed training, they become more superior (Ebben 2002). It was shown that plyometric exercises applied to different specialties has improved the jumping performance (Ölçücü, b., erdil, g., & Altınkök, m. 2013), speediness (Miller *et al.* 2006). Thus, since the results obtained by those investigators revealed that the speed training has statistically significant changes on the long jump performance, it is highly consistent with the results of this study.

This study showed that different types of training exercises have an effect on the 30-meter speed run and reduce its time. The model results of this study indicated that there was a statistically significant change of the 30-meter speed run on the performance of long jump. This result was seen after the trainees took 12 weeks training intervention. Thus, the result obtained in this study was consistent with the study by (Faigenbaum *et al.*, 2007 & Meylen and Malatesta, 2009).

Francesco Fischetti *et al.* (2018) conducted the study on the Effects of Plyometric Training Program on Speed and Explosive Strength of Lower Limbs in Young Athletes. The study considered 22 respondents those aged 13-14 years to be trained for the intervention of 8 weeks. Then, the researcher randomly assigned experimental group and control groups as 10 and 12 respectively. At baseline and after training all participants were tested on the 20-m sprint (time) and Squat Jump (power, velocity, force and height). The EG group showed significantly ($p < 0.05$) improvement than CG in the 20-m sprint time (-0.1 vs. 0.1 sec). Likewise, this result was consistent with our research study that there was time improvement on the experimental group of those took 12 weeks of intervention with 30m shuttle run speed test.

Generally, the physical fitness designed with the variables exercise of explosive Power, flexibility and speeds training on long jump performance exercises have significantly affected the performance of athletes. With respect to this effect, within Experimental and control group comparison, the results revealed that the mean score of long jumper athletes has significantly increased after the 12 weeks of training intervention. Besides, the summary results in the table indicated that considering the p-value across the variables under study, the experimental have shown a great changes and this is for the fact that the interventions training obtained in 12 weeks are significant. However, during the pretest, the difference between the control and experimental group could not indicated significant change.

Hypothesis: Accepted/Rejected

Physiological responses to physical training, including physical fitness have been well studied by many investigators. A wide variety of training studies shows that physical fitness can improve performance in vertical jumping, long jumping, sprinting and sprint cycling. Just one or two types of training exercise completed 1 to 3 times a week for 8 to 12 weeks can significantly improve physical fitness parameters (Marković *et al.*, 2007; Villarreal *et al.*, 2009). In accordance with these findings, the present study proved that 12 weeks intervention training significantly improved explosive leg power, flexibility and speed training on the performance of long jumper athletes. Based on the results of this study, the following decision on the hypothesis was made:-

Since there was a statistically significance difference between the experimental and control group regard to explosive power in the pre-test and post-test scores of the performance of long jumper athletes, therefore the **hypothesis was rejected**.

On the other way, there was a statistically significance difference between the experimental and control group regard to flexibility in the pre-test and post-test scores of the performance of long jumper athletes, therefore the **hypothesis was rejected**.

Moreover, the summary results of the study indicated that there was a statistically significance difference between the experimental and control group regard to speed training in the pre-test and post-test scores of the performance of long jumper athletes, therefore the **hypothesis was rejected**.

Generally, there was a statistically significance difference between the experimental and control group regard to long jump performance in the pre-test and post-test scores of the performance of long jumper athletes of Burayu town athletes who trained using either plyometric training exercises, explosive strength training, speed training, flexibility training, therefore the **hypothesis was rejected**.

Generally, after analyzing the pre-post mean difference of each variable, the study showed that physical fitness improved significantly. Thus, the test results of this study revealed that explosive power, flexibility and speed training exercises are useful to enhance the performance of long jump athletes

5.1. Conclusions

Based on the results, it can be concluded that:-Selected physical fitness training exercises were effective in increasing explosive power, flexibility and reducing sprint time in performance of long jumper athletes. Physical fitness Training can be safely introduced to improve Explosive leg power jump ability, Flexibility, Speed and reduce chances of sports specific injury. Generally, the present study indicated that 12-weeks of well-designed physical fitness training enhanced the performance of long jumper athletes. Therefore, in addition to the usual training program of the coach additional training like scientific based training should be incorporated in the long jump training program in order to maximize the ability of the athletes.

5.2. Recommendations

Based on the major findings and conclusions of the study, the following points were recommended as follow:

Physical fitness training exercises were effective in increasing Explosive leg power performance, Flexibility and reducing sprint time in the performance of long jumper athletes of Burayu athletics club. Therefore, selected physical fitness training methods are recommended to Long jumper athletes for improving Explosive leg power performance, Flexibility and speed training.

In diversity society, it is necessary to do further research in the area of long jump performance and different type of exercise. The proposed training program including the explosive power, flexibility and speed training exercise should be a part of physical preparation of long jumper athletes, because of their significant influence on raising the level of the athletes physically and skill fully.

It is highly expected from sport professionals and related fields to guide and train on the importance and value of selected training programs to achieve the physical fitness. Since selected physical fitness training program is proved that it is beneficial and easy to manage; so, long jumpers' coaches should encourage using their training session to produce well qualified long jumper athletes. It is necessary to raise awareness among trainers with the important of Explosive power, Flexibility and speed training exercises in raising the physical fitness and skillful performance of long jump athletes.

Authors' contributions

This study was designed and compiled by DessalegnwaseMolaas the principal investigator. The development of the basic research questions, identifying the problems and selecting appropriate statistical models have been done by him. Edition of the overall progress of the work and compiling the Thesis was supported by Dr.AlemmebratkiFluAdane(Associate Professor). Finally, all parts of the research has been read by both the researcher and approved for the publication.

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Anthropometric characteristic of international junior volleyball players and local junior volleyball players in the West Gojjam, Ethiopia

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Abstract

Volleyball teams found in the west Gojjam, Ethiopia have been frequently won in the regional championships. Due to this, experts, players, coaches and most of the community in the region believed that they are talented as national and international players. As literature indicates, the key predictor for talent in volleyball players is directly related to Anthropometric characteristics. Such as stature, body weight, spiking and blocking reach heights. Therefore, the purpose of the study was to compare whether there exists a significant mean difference between junior volleyball players in the West Gojjam, Ethiopia and international players. In this study, 54 junior (U-19) volleyball players from three volleyball teams were involved in the study. Five anthropometric variables were selected and measured based on the procedure set by international society for kin-anthropometry, ISAK procedure. Anthropometric data of international players is obtained from the databases of the world championships 2017 on the official FIVB website. Independent t- test was used for analysis and Alpha Value of 0.05 was set for statistical significance. The results of the study reveal that there were significantly difference between junior volleyball players at the West Gojjam zone of Ethiopia and international players in relation to the selected anthropometric variables ($p < .001$). This minimal characteristic might be the reason behind our limited participation even in east African level. Our Volleyball coach, players, community and other stakeholders should give emphasis for anthropometric characteristic while identifying talent in volleyball sport.

Key terms: Anthropometric characteristic, international and junior volleyball players

Introduction

In Ethiopia, particularly in the west Gojjam zone, volleyball is considered as cultural sport. A lot of peoples have been participated in volleyball for fitness, health and competition purpose. In the regional championship, most of the medals and trophy has been taken by teams which represented west Gojjam zone. Volleyball coaches, players and local Medias also believed that players of the given zone are talented as international players. However, As literature indicates, the key predictor for identifying talent in volleyball players is directly related to Anthropometric characteristics (Ahmed & AlMaghawry, 2012; Gaurav, Singh & Singh, 2010; Malousaris, Bergeles, Barzouka, Bayios, nurses & Koskoloub, 2008) Particularly, the stature, body weight, spike and block reach height are considered as the most important talent determinant variables in volleyball sports (Jin, Liu, Zhang & Ge 2007; Jose, Palau, Policarpo, Manzanares & David, 2014; Wood, 2015; Michael, 2016; Andrea, 2017). There are research works on anthropometry characteristics of sportsmen and women in Ethiopia. Particularly, on athletics (Abdu & Pallavi, 2018; Abebe & Kumar, 2017; Zerihun & Rediet, 2017; Wishnizer, Inbar, Klinman, & Fink, 2013; Hailu, Yekoye, Egidio & Miserocchi, 2011), soccer (Wale, & Ibrahim, 2018; Reda, 2017; Bereded & Singh, 2016a; Bereded & Singh (2016b) and basketball sports (Endris & Kumar, 2018). To the researchers' knowledge, there was no study conducted on anthropometric characteristic of volleyball players at any level. Therefore, the purpose of the study was to compare whether there exists a significant mean difference between junior volleyball players in the West Gojjam, Ethiopia and international players.

Methods

Research Design: This study used cross-sectional research design and its descriptive in nature. According to Gratton and Jones (2004) cross sectional research design is used to compare many different variables at the same time with little or no additional cost.

Population and sampling techniques of the study: The target populations of the study were junior volleyball players found in the West Gojjam zone of Ethiopia. There are three well known junior volleyball teams in the given zone. All the players who are regularly trained and free from injuries were involved in the study. Totally, 54 junior male players included in the study. 60 international players who participated in the world championships 2017 also part of this study as a secondary data.

Sources of data: Primary data were directly collected from the three junior volleyball team players in the West Gojjam zone of Ethiopia. Secondary data also assessed from official websites of FIVA, 2017.

Ethical Consideration: Before the measurement, the researcher informed the purpose of the research for experts in regional volleyball federation experts. Then the researcher, in collaboration with experts of the federation had given awareness to the coaches and volleyball players. Eventually, the players voluntarily involved in the study and informed written consent was taken from the players and coaches.

Data gathering instrumentation: The anthropometric characteristics of each junior volleyball player are measured by using International standard instruments and procedures. Namely, International Standard for Advancement of Kin anthropometry (ISAK, 2009). Five anthropometric measurements were taken from volleyball players by using the procedure set by International standard for advancement of the Kin anthropometry protocol (Marfell-Jones, Olds, Stewart, Cater (2006).

Results of the study

The results of independent sample t-test presented in table 4.1 below.

Table 4.1: *Independent sample t- test between junior volleyball players in West Gojjam zone of Ethiopia and junior national team players of 2017 world championships (Egyptian, Iranian, Japanese, Italian and Brazilian).*

ACS	Ethiopians Mean (n= 54)	International mean (n=60)	M.D	P	ES Cohen's
Stature(cm)	176.25 ± 7.18	193.94±8.24	-17.68	0.001	2.29
Weight(kg)	60.12 ± 7.64	82.21±9.70	-22.08	0.001	2.54
BMI(kg/m)	19.42 ±1.82	21.80±1.84	-2.37	0.001	1.82
SRH (cm)	271.62 ± 13.40	325.12±16.15	-53.49	0.001	3.62
BRH (cm)	258.05 ± 11.39	307.88±13.00	- 49.82	0.001	4.08

Abbreviation: ACS – anthropometric characteristics, BMI - Body Mass Index, SRH - Spike Reach Heights, BRH- Block Reach Heights, M.D-Mean Difference , P <.05, ES- Effect Size

Source: Secondary raw data were obtained from the databases of the world championships 2017 on the official FIVB website (www.fivb.org).

Table 4.1 presents the difference of some anthropometric variables between junior volleyball players in the West Gojjam zone of Ethiopia and international norms. Stature ($p < .01$, $d = 2.29$), weight ($p < .001$, $d = 2.54$), body mass index ($p < .01$, $d = 1.82$), spike ($p < .01$, $d = 3.62$) and block reach heights ($p < .01$, $d = 4.08$) differed between the groups. In the entire five anthropometric characteristic, there was a significant difference between the groups. The anthropometric characteristics of junior volleyball players in the west Gojjam, Ethiopia was significantly lower than international norms

Discussion of findings

The stature: In the present study, the mean body heights (stature) of junior volleyball players in the West Gojjam zone of Ethiopia were significantly shorter than international norms ($p < 0.001$). There was about 17.69cm gap between them. The mean stature of our players was almost similar to the finding of the study reported by Bandyopadhyay (2007), 173.10 ± 4.19 cm, and Mandal, Maity and Sahu (2015), 176.34 ± 3.54 cm. In contrast, the finding of this study was not alien with the findings reported by Duncan et al., (2006) and Petro ski et al., (2013). The stature of England and Brazilian junior national team players were 191.00 ± 5.0 cm, Duncan et al., (2006) and 197.0 ± 8.0 cm, Petro ski et al (2013). The height of players largely (80%) determined by genetic makeup of players and the rest 20% related to environmental factors, including, physical activity climates, dietary habits, health states, traits of players and lifestyle (Jafari,2006): In volleyball, Stature is the most vital anthropometric characteristic. The tallest player in volleyball has an advantage in both defensive and offensive actions and to dominate over the net (Gaurav, Singh, Singh, 2010; Stamm, et al 2003). Effective execution of volleyball skills as well as the service depends on the stature of the players (Stanganelli, Dour ado, Oncken, Mancan, & DA Costa, 2008).

Body weight: In our study, the mean body weight of junior volleyball players in the West Gojjam zone of Ethiopia was significantly lower than international norms ($p < .001$). The mean body weight of junior volleyball players in the West Gojjam zone of Ethiopia and the international norms was 60.12 ± 7.64 kg and 82.21 ± 9.70 kg respectively. There was about 22.09 kg difference between them. the body weight of our players was not parallel to the finding reported by Mandal, Maity and Sahu, (2015), 65.07 ± 9.82 kg, and Koley, Singh and Sandhu, (2010), 69.09 ± 69.09 kg. Additionally, the mean body weight of our junior volleyball players was inconsistent with other findings. The mean body weight of England junior volleyball players was between 71.2kg and 77.9kg, as reported by Wood field and al-Nakeeb (2006). The average body weight of Turkish junior volleyball players was also similar to the England junior volleyball players, (74.8kg) as reported by Aytek (2007). The mean body weight of American junior volleyball players was also similar to the mean weight of Europeans junior players, which was $71.1\text{kg} \pm 9.6\text{kg}$ as reported by Gabbett, Georgieff & Domrow (2007). The mean body weight of Australian junior national team volleyball players was greater than world average norms. That is 88.4 ± 7.7 kg (Newton , 2012). The heavier player in volleyball has an advantage in offensive actions and significantly heavier body weight among volleyball players might be disadvantageous to them in attaining a good jumping height as they have to lift a great weigh. Therefore, coaches and related bodies should carefully consider the weight of players while selecting players.

Spike and block reach heights of junior volleyball players

The statistical analysis of this study confirmed that the mean spike and block reach heights of junior volleyball players in the West Gojjam zone of Ethiopia were significantly lower than world average traits ($p < 0.001$). The result confirmed that the spike and block reach a height of junior volleyball players in the West Gojjam zone of Ethiopians were 271.62 ± 13.40 cm and 258.05 ± 11.39 cm respectively. The world average spike and block reach height was 325.12 ± 16.15 cm and 307.88 ± 13.00 cm respectively. There was about 43.5 cm and 49.83 cm gaps in both spike and block reach heights of players respectively. The highest spike reaches height scored by the Canadian junior volleyball player. His spike reach height was 382 cm (Keith, 2017).

The spike and block reach heights of players is determined by the stature of the players, their technical ability of jumping , including the joint angle, the take off phase and the resistance of air or gravitational force (Rupesh, 2010). Therefore, the minimal spike and block reach heights of our players might be associated with their minimal height and their technical limitations while jumping to spike and block the ball. In volleyball, the spike and block reach heights represent 45% of total actions and 80% of the points obtained within international matches (Marques, Van den Tyler, Vescovi, & Gonzalez- Badillo, 2008; Lobietti, Michele & Merni ,2006; Voigt & Vetter, 2003). There for, it's very vital to consider spike and block reach height of players while searching talented players. Volleyball Coaches, physical educators and sport directors should focus on these activities during the selection of players.

Conclusion

Based on the results of this study, there was significant difference between junior volleyball players in the West Gojjam zone of Ethiopian and international players in relation to stature, body weight, body mass index, spike and block reach the heights ($p < .001$). These indicate that junior volleyball players found in west Gojjam Ethiopians are disadvantaged for volleyball sport and it's difficult to conclude that the players are talented as international players. This minimal anthropometric characteristic might be the reason behind our limited participation even in east African level.

Recommendations

It is vital to consider anthropometric characteristic of players while searching talented volleyball players. Volleyball coach, players, sport journalist and related bodies should consider anthropometric characteristic of players during selection of talented players.

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**Building Profile of Competences for Students of Physical Education of
Thai Nguyen University of Education**

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Abstract: The article presents the results of practical research on a group of academic competencies and a group of professional competencies of teachers of PE in high schools in 06 northern mountainous provinces of Vietnam. Based on the analysis of questionnaires and in-depth interviews with alumni and education managers, we proposed the profile of competences for students majored in PE of the Department of PE and Sports, University of Education - Thai Nguyen University. This is the basis for innovating the training program for teachers of sports and PE to meet the requirements of reforming the general education program and taking into account the compatibility with regional characteristics.

Keywords: Profile of competences, Career profiles, PE, Teachers.

1. Introduction

Teacher training program has to be innovated to meet the requirements of reforming general education and the demand of the labor market. Therefore, teacher training institutions must base on educational practice and career profiles of teachers to build students' profiles of competences. The authors Döhrmann, Kaiser and Blömeke (2012) argued that "whether the teaching is successful or not depends on the teachers' professional knowledge and belief in teaching" [1].

Thus, teachers need to have fundamental knowledge of the subjects (academic knowledge); knowledge of teaching profession; belief, career motivation and ability to adapt, self-adjust in the teaching process (professional knowledge). There are many different points of view about the components of the competence that university students must have. Basically, the competence of university students consists of four elements [2]: 1/ The quantity, content and level of knowledge; 2/ Practical competence (practical skills and techniques); 3/Cognitive competence and thinking competence; and 4/Social competence (human qualities). These are the basic components from which each researcher divides them into skills or measurable competence levels.

Based on teachers' career profiles, teacher training programs should help students develop the most essential competencies to approach the standards of career profiles. It can be titled the students' profile of competences. With regards to Physical Education (PE), a profile of competences is a collection of competences and qualities that students need to achieve in order to take up the teaching of PE in high schools in different teaching environments after graduation. In order to build a profile of a student's competences, we need to base on analyzing the results of the labor market survey, consulting domestic and foreign experts and comparing with the practical teaching requirements in high schools. Accordingly, teacher training institutions can identify knowledge modules in the training program to develop the competences of students in the profile built.

2. Surveying the labor market

There were 110 people in 6 provinces in the northern mountainous region participating in the survey, including 24 managers, 82 alumni who are working as teachers and 4 alumni who are not working as teachers. The second goal of the survey was to assess the adaptability and career movement of pedagogical students. Questionnaires and in-depth interviews were designed in the direction of assessing the level of achievement of the competences of the alumni of Faculty of Sports after graduation. In-depth

interviews were also used to gather ideas and opinions from educational experts. The survey results are the basis to determine the students' profile of competences and to renovate the application-oriented training program (also known as POHE training program). The survey data was processed by SPSS software to test statistical hypotheses and make necessary conclusions about the competences and qualities of students.

The questionnaire set was designed on the 4-leveled scale of Likert with coding from unnecessary levels (= 1) to very necessary (= 4). The table below summarizes the average scores of students (TB1) and managers (TB2) on the necessity of groups of competences:

Table 1. Evaluation of the group of specific competences

No.	Competence	TB1	TB2
1	Competence to analyze, synthesize, generalize, abstract, concretize	3,6	3,8
2	Competence to organize sports competitions	2,9	2,5
3	Competence to detect and solve problems in teaching PE and Sports	3,5	3,6
4	Competence to build and develop the syllabus of PE	3,2	3,3
5	Competence to apply knowledge of sports in teaching PE in high school	2,7	2,5
6	Competence to model practical situations in teaching PE.	3,4	3,2
7	Competence to practice sports exercises	3,6	3,7

Table 2. Evaluation of the group of teachers' professional skills

No.	Competence	TB1	TB2
8	Skills of learning the curriculum and textbooks	3,5	3,7
9	Skills of planning in teaching and education	3,8	3,6
10	Skills of learning educational objects and environment	3,1	3,4
11	Skills of designing teaching plans	3,7	3,7
12	Skills of organizing teaching activities	3,6	3,8
13	Skills to organize educational activities and creative experience activities	3,4	3,3
14	Skills of examining and evaluating students' learning results in the direction of competence development	3,5	3,7
15	Skills of designing and using teaching facilities	2,6	2,8
16	Skills of applying information technology in teaching	3,1	3,5
17	Skills of applying sports skills in practice	3,3	3,3
18	Skills of differentiated teaching	3,6	3,5
19	Skills of handling pedagogical situations	3,2	3,4
20	Self-studying and self-fostering skills	3,6	3,6
21	Skills of using foreign languages at work	2,8	2,6

Table 3. Evaluation of the group of personal qualities and social skills

No.	Competences	TB1	TB2
22	Political quality	3,6	3,5
23	Professional ethics	3,6	3,8
24	Management skills	3,2	3,2

25	Teamwork skills	3,3	3,1
26	Skills of presenting in public	3,4	3,4
27	Skills of communicating with students	3,8	3,7
28	Skills of communicating with colleagues and students' parents	3,6	3,7
29	Skills of dealing with political-social organizations	2,9	3,3
30	Skills of collaborating with organizations, individuals to educate students	3,1	3,3

The results in table 1 show that alumni and managers have the same opinion about the specific competences of teachers who teach PE. In particular, competences 1, 3, and 7 are evaluated at a very high level of necessity. This means that professional knowledge and competence to apply knowledge in practice play a very important role in teaching PE. Table 2 shows that skills 9, 11, 12, 14, 18, and 20 have a high average score, especially the designing and organizing teaching activities skills. In this group of skills, there is also consistency in the evaluation of alumni and managers, in which self-study and self-improvement skills are assessed at a relatively high level (average = 3.7). Table 3 shows that skills 22, 23, 27, and 28 are essential for students of PE, which emphasize professional ethics, behavioral arts and communication skills of students.

According to the results of the labor market survey, teacher training institutions need to build a new profile of competences for students of PE. Thereby identify the basic contents of innovating teacher training programs and developing standards for assessing graduates' output.

3. Students' profile of competences

Based on practical researches and experts' advices, we proposed a group of general competences and a group of specific competences presented in the profile of competences for PE students in different levels (high, medium, low):

TT	Group of general competences	Level
1	Competence of analyzing and generalizing	Medium
2	Competence of planning and managing	Low
3	Competence of communicating	High
4	Competence of using foreign languages	Low
5	Competence of applying information technology in teaching	High
6	Competence of conducting scientific research and guiding students to conduct scientific research	High
7	Competence of self-studying and self-fostering	High
8	Competence of supporting colleagues developing careers	Medium
9	Competence of working in a team	High
10	Competence of working in a multicultural environment	Low
11	Competence of detecting and solving problems in practice	High
12	Competence of working with an interdisciplinary team	Medium
13	Competence of counseling, psychological supporting and career guiding	Low
14	Competence of applying integrated and differentiated teaching	High
15	Competence of relating the subject knowledge to problems in practice	Medium
16	Competence of handling pedagogical situations	High
17	Competence of researching and developing teaching programs	High
18	Competence of organizing social activities	Low

19	Competence of educating life skills for students	Low
20	Competence of critical thinking	Medium
21	Professional ethics, devoted to teaching	High
Group of specific competences		
22	Competence of practicing sports exercises	High
23	Competence of applying exercises to improve health and sports competitions	Low
24	Competence of developing sports	Medium
25	Competence of abstracting and generalizing	High
26	Competence of modelling sports competing situations in practice	High
27	Competence of conducting quantitative analysis	Medium
28	Competence of using language in teaching PE	Medium
29	Competence of designing and using teaching facilities	Medium
30	Competence of designing and using teaching activities	High
31	Competence of designing and using creative experiential activities	High
32	Competence of evaluating students' performance in the direction of competence development	High

In summary, in order to meet the requirements of reforming the general education program, teachers need to be trained and fostered the new competences shown above such as researching and developing teaching programs; competence of integrated teaching; competence of assessing students' learning performance; competence of designing and organising creative experiential activities; conducting scientific research and guiding students to do scientific research. This group of competences is highly recommended in the teacher training program.

4. Conclusion

The profile of competences of students majored in PE is the basis for determining the content of knowledge modules, methods of organizing teaching activities and methods of assessing students' learning performance, in which it is necessary to design competence matrix to compare each knowledge module with a certain group of competences. Based on this matrix, teacher training institutions can innovate the curriculum framework, replace knowledge modules easily and in accordance with the career-orientation application. The profile of competences of students can be replaced and supplemented regularly to meet the requirements of general education, especially in the context where Vietnam is in the process of strong integration with the world, the formation of a common community of ASEAN countries.

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The Preliminary Measures to Improve The Quality of Physical Education in Junior High Schools in North-Central Vietnam

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Abstract:

The main aim of this paper is to apply some measures to improve the quality of physical education (P.E.) in north-central junior high schools in Vietnam. The measures are suggested: Raising awareness of P.E. for managers, teachers, students, and parents; increasing the quantity and improving the quality of P.E. teachers; improving the facilities, sports grounds, and training equipment and tools; innovating teaching methods and promoting the extra-curricular activities of P.E.; and implementing the educational supervision. **Keywords:** P.E teachers, innovative teaching methods, educational supervision

1. Current state of physical education in junior high schools of North-Central Vietnam

There are six administrative units in the North-Central Vietnam, including Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, and Thua Thien Hue. Hue City and Vinh City are tier-1 cities and Thanh Hoa is a tier-2 city among five cities (Thanh Hoa City, Vinh City, Dong Hoi City, Hue City, and Ha Tinh City) in this region, up to 2017. The area of the whole region is 51511.9 km², taking 15.6% of the whole country. The population was recorded in 2017 as 10922.7 thousand people, taking 12.6% of the whole country, with an average population density of 210 person/km².

In the past years, with attention from the central and provincial governmental authorities, education in general and P.E in particular have made more progresses. According to the summary report on P.E of the junior high schools (JHS) in the academic year 2016 – 2017 by North-Central Vietnam of Departments of Education and Training, some shortcomings still exist. This means that quality of P.E in the JHSs is not adequate.

In September 2017, we interviewed a total of 270 people, including the principals, professional team leaders, and P.E teachers in 90 schools (six provinces, 15 schools each province, 30 mountainous schools, 30 delta schools and 30 lowland schools) in North Central Vietnam in order to understand the actual situations and causes of impacts on quality of P.E in the JHSs in North Central Vietnam. We focused on some factors that affect quality of P.E in the JHSs as follow:

The attention from schools on P.E; The staffing structure of P.E teachers (quantity and quality);

Facilities used for P.E; Innovations of teaching methods, initiatives and experience learned of P.E teachers; Extra-curricular activities for students.

The above factors are used in the questionnaire. Survey results are shown as follow:

Table 1: Evaluation and rating of P.E in the academic year of 2016 – 2017

Some important factors affecting quality of P.E	Results (Quantity/ rating, n = 270)			
	High concern	Low concern	Concern	No concern
School's attention on P.E	9 people (3.3%)	86 people (31.9%)	146 people (54.0%)	29 people (10.8%)
Quantity and quality of P.E teachers	Good 14 (5.2%)	Fair 46 (17.0)	Average 162 (60.0%)	Unsatisfactory 48 (17.8%)
Facilities used for P.E	Good 12 (4.4%)	Fair 38 (14.1%)	Average 143 (53%)	Unsatisfactory 77 (28.5%)
Innovation of teaching methods of P.E teachers	High concern 3 (1.1%)	Low concern 87 (32.2%)	Concern 104 (38.6%)	No concern 76 (28.1%)
Extra-curricular activities for students	High concern 22 (8.1%)	Low concern 68 (25.1%)	Concern 101 (37.4%)	No concern 79 (29.3%)
Quality of P.E	Good 16 (5.9%)	Fair 44 (16.3%)	Average 117 (44.3%)	Unsatisfactory 93 (33.5%)

Results from Table 1 and from interviews with many other managers and P.E. teachers show that the main causes of P.E in the JHSs of North Central/Vietnam are:

- Some managers, P.E teachers, and parents are not concerned about the quality of P.E;
- Quantity of P.E teachers is insufficient and their qualifications are limited. Many teachers who graduated from university for a long time have not yet been upgraded for further professional development. Some new teachers lack teaching experiences;
- Facilities, sports grounds and sports tools are outdated, which do not meet requirements the of P.E;
- Several teachers and students consider P.E as a “secondary subject” due to their traditional thinking. That is why, this subject has not been paid attention on both teaching and learning. Teaching methods are little reformed. Extra-curricular activities and physical exercise movements to enhance health and protect the country are organized but of low quality. P.E lessons are formalistic and shortened. Scientific research and teaching experience compilation have not been conducted regularly.

2. Some solutions to improve the quality of P.E in the JHSs of North Central Vietnam

The above mentioned basic shortcomings result in low quality of P.E in the JHSs in North Central Vietnam. Based on the actual state and causes stated above, we would like to propose some solutions to improve the quality of P.E in the JHSs of North Central Vietnam.

Enhancing awareness of managers, teachers, students and parents

This is highly important. Thus, the principals of the JHSs must closely follow objectives, contents and curriculum of P.E introduced by the Ministry of Education & Training; comply with planning and supervising implementation of progress and quality in the academic year (through meetings with the school leaders about P.E in the JHSs held by the Department of Education & Training (every 3 months). Principals of the schools must thoroughly grasp and disseminate contents of the levels pertaining to education in general and P.E in particular to all teachers and students to learn about the meanings of P.E activities for health and comprehensive development of the youth as well as create strict, but comfortable learning atmosphere in schools. Therefore, it is required to regularly launch emulation movement titled “good teaching, good learning and good practicing”, in which P.E activities are a “*basic factor*” to crease eventful atmosphere to push up movements. It is also required to strengthen propaganda of P.E on local mass media and in sports festivals in schools, districts, towns and cities levels and in preparation for Phu Dong Sport Festivals in the whole province.

Strengthening quality and improving quality of P.E teachers in the JHSs

The task of organizing, training and fostering is quite complicated and difficult in practice, in selection and administration of the schools and Education Departments. Unbalanced numbers of *teachers* between the subjects as stipulated by the education sector (currently surplus of cultural teachers but shortage of P.E teachers), sufficient or excessive in quantity of permanent teachers compared with the limit for a school are the largest obstacles in providing P.E teachers for the JHSs. Although young teachers who graduated from colleges and universities and currently have no jobs are abundant and eager for teaching career. To gradually deal with these problems, we propose proper solutions to the related agencies (leaders of the Departments of Education and Training and Interior Offices of the provincial People's Committees) to guarantee the interests of the teachers when changing their careers or early retiring (for reason of poor health and low qualifications) in accordance with the State's regulations of selection and recruitment of P.E teachers. It is required to gradually reduce and remedy situation that non-P.E. teachers must teach P.E lessons at present in Ly Tu Trong JHS, Thanh Hoa City, Thanh Hoa Province; Dong Le JHS, Tuyen Hoa District, Quang Binh Province; and Huong Tho JHS, Huong Tra District, Thua Thien – Hue Province, etc.)

Regarding the qualifications of physical education teachers, the Departments of Education and Training and Department of Internal Affairs should provide professional advice for the provincial People's Committees to set up the procedures and standards of recruiting P.E teachers to ensure good quality. Besides, it is required to encourage and create favorable conditions for P.E teachers of *unsatisfied qualifications* to attend the training courses by Sports Universities or other upgraded programs, and help them “both study and work.” Importance must be attached to training and fostering P.E teachers in summer to update sports scientific information and reform teaching methods. This is an opportunity to access to exchange and directly discuss with other teachers about P.E. and between P.E teachers in schools, helping them improve their qualifications.

Reinforcing facilities, sports grounds, equipment and tools

Regarding sports grounds of the JHSs in North Central Vietnam, it is required to satisfy requirements of qualifications for designing the school facilities under standards, providing advice for the Departments of Education and Training and Department of Planning and reporting to the province on alternatives (both present and long-term future) to meet scope and area of the schools and standard sports ground quality, which serves for teaching and studying physical education subject following the regulation of the Ministry of Education and Training. All schools must have sports ground of 3.5m-4m/student. This is a very difficult task for the schools with narrow areas. Thus, expanding area and campus of the school to meet educational requirement is an inter-sectorial task. This requires principals of the JHSs to proactively propose measures of high feasibility and efficiency with help of the ward and sports event halls of the district, town and province to provide sport ground and sports tools.

Regarding teaching aids for physical education subject, schools must proactively make requests with the Departments and People's Committees of the provinces to purchase sports tools. On the other hand, it is required to strengthen support of the Parents-Teachers Association (PTA) and social organizations to reinforce facilities and sports equipment and tools for the schools.

Reforming teaching methods and strengthening extra-curricular sports activities

Reform of teaching method to prompt initiative and creativeness of students in learning is the most important task in schools. Therefore, physical education teachers must thoroughly grasp theory and practice to reform teaching method accordingly; select and use active teaching methods in the most effective manner. Teachers must know how to apply information technology in teaching physical education in schools, using teaching software and specialized websites as references or illustration to make the lessons more joyful and interesting. To fulfill this task, schools must encourage subject teachers to enhance awareness of self-learning and qualifications (informatics and foreign language), have appropriate reward mechanism for teachers who actively reform teaching method and excellent classes (at school and provincial levels) and obtain useful initiatives and other upgraded qualifications.

It is also required to strengthen extra-curricular activities and organize sports events between the schools. To do this, schools must establish extra-curricular sports plan to improve skills and develop talent of students. In the academic year 2014-2015, 68% of the schools had students participate in extra-curricular activities and practice twice a week. In the academic year 2017-2018, it is required to encourage 95% of the schools to organize extra-curricular sports activities.

Carrying out professional inspection and enhancing quality of physical education

The Departments of Education and Training must carry out professional inspection and require the JHSs to strictly comply with professional regulations, regularly check, attend classes and evaluate classes as set by the Ministry of Education and Training. It is required to group, zone and establish cross professional inspection plan between the JHSs to create emulation atmosphere of good teaching and good learning all over the region. To create favorable conditions for regular inspection of the Departments of Education and Training, principals of the JHSs must execute educational management closely following profession, inspect and attend classes, require regular update of professional documents in schools.

3. Results of applying methods to improve quality of physical education in the JHSs of North Central Vietnam

To verify efficiency of the above methods, after one-year implementation in 90 JHSs of North Central Vietnam, in September 2012, we conducted the second survey and collected their opinions from 90 secondary schools (30 mountainous schools, 30 delta schools and 30 lowland schools). We selected 180 people (three people per school). The results are as follows

Table 2: Evaluation and rating of physical education in academic year of 2016-2017

Some important factors affecting quality of physical education	Results (Quantity; rating, n = 270)			
School's attention on P.E.	High concern 107 people (39.6%)	Low concern 132 people (48.9%)	Concern 31 people (11.5%)	No concern 0 people (%)
Quantity and quality of P.E. teachers	Good 98 (36.3%)	Fair 106 (39.3%)	Average 66 (24.4%)	Unsatisfactory (%)
Facilities used for P.E.	Good 97 (35.9%)	Fair 95 (35.2%)	Average 78 (28.9%)	Unsatisfactory (%)
Reform of teaching methods of P.E. teachers	High concern 111. (41.1%)	Low concern 99. (36.7%)	Concern 60 (22.2%)	No concern (%)
Extra-curricular activities for students	High concern 129 (47.8%)	Low concern 98 (36.3%)	Concern 43 (15.9%)	No concern (%)
Quality of P.E.	Good 107 (39.6%)	Fair 109 (40.4%)	Average 54 (20%)	Unsatisfactory (%)

According to *Table 2*, quality of physical education has been clearly improved (good rating from 7.2% to 38.5%; fair rating of 19.8% → 38.9%, a decrease in average rating from 53.7% to 20.5% and no unsatisfactory rating recorded. In general, components of P.E quality after one-year implementation of reformed methods in the JHSs of North Central Vietnam have actively changed.

P.E in schools in general and JHSs in particular is an important task for comprehensive development of young generation. P.E must be in line with each student. This is a highly theoretical and practical matter. It is required to realize in line with purposes, requirements, contents, programs and specific conditions in the locality. The above-mentioned P.E measures may not be completely new to many managers, principals and physical education teachers in the JHSs. The point here is how to access such measures to apply in practice. It is the key to require to promote the awareness, responsibility and enthusiasm of each member in the school, including the school principal, to promote collective strength to gradually meet increasing requirements of educational career in general and physical education in particular.

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A Psychological Study – Between Handball And Non-Handball Players

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Introduction

Mental Health Means Ability To Balance In One's Daily Living. In Other Words It Is The Ability To Face And Balance The Reality Of Life. Mental Health Is A Complex Phenomenon Depends On A Set Of Familiarly Personal, Psychological And Social Variables. Mental Health Is An Important Feature As The Physical Health Of A Person To Make Him Complex With Balance Mental Disposition Of The Children To Cope With Life More Effectively And Productively. Good Mental Health Depends On The Good State Of Both Mind And Body. Each Exerts A Direct Influence On The Other, But Owing To The Power Of Matter, Good Mental Health Is The Harmonious Functioning Of The Whole Personality.

Methodology :

Therefore, It Was Felt Necessary To Undertake An Integrative Study On The Mental Health Between The Handball And Non-Handball Players Of Beed District.

Sample :

Keeping The Objectives In View, Appropriate Research Design Is Adopted. The Sample For The Study Is Drawn From The Handball And Non-Handball Players Of Beed District. 50 Handball Players And 50 Non-Handball Players Were Administered Mental Health Scale To Assess The Differences In Their Mental Health. The Sample Design Is An Under:

Statement Of The Problem :

To Measure And Compare The Level Of Mental Health Between Handball And Non-Handball Players Of Kalaburagi District.

Objectives of the study:

To examine the level of mental health between handball and non-handball players of Kalaburagi District. To understand the differences in mental health between handball and non-handball players of Kalaburagi District. To know the difference between male and female handball and non-handball players of Kalaburagi District. To know the age factors influence on mental health of handball and non-handball players.

Significance and relevance the study :

- This would enable them to understand and to know the level of psychological strengths and weaknesses of players with respect to their participation in different sports.
- To know the extent of help in providing guideline to physical education teachers and coaches for selecting and preparing players for their psychological make up.
- To know the complex physical, intellectual, emotional and developmental patterns and success in sport is an integral part of this pattern. Thus, an understanding of behavior in sport will aid us in helping people to better fulfill their lives.

Results

Table – 1 Mental Health Level of handball and non-handball players

Players	M	SD	t-value
Handball Players	128.23	15.63	6.54**
Non-Handball Players	146.12	11.02	

Table 1 show the mean, SD and t-value of handball and non-handball players in relation to their level of mental health. The Mean and SD of handball is 128.23 and 15.63 respectively and the mean and SD of handball players is 146.12 and 11.02 respectively.

Table – 2 Mental Health Level of handball and non-handball players on age factor

Players	Age	Mean	SD	t-value
Handball Players	<25	130.21	16.72	1.61**
	>25	125.45	18.54	
Non-Handball Players	<25	145.24	10.56	0.53
	>25	144.13	9.89	

Table 2 show the mean, SD and t-value of age groups of handball and non-handball players in relations to their level of mental. The mean and SD of below 25 age handball players is 130.02 and 16.72 respectively and the mean and SD of above 25 age handball players is 125.45 and 18.54 respectively.

Table – 3 Mental Health Level of handball and non-handball players on gender difference

Players		Mean	SD	t-value
Handball Players	Male	127.26	17.13	1.64**
	Female	132.54	14.52	
Non-Handball Players	Male	141.23	8.56	1.22**
	Female	146.11	11.01	

Table 3 show the mean, SD and t-value in gender difference of handball and non-handball players in relation to their level of mental health. The mean score of male handball players 127.26 is higher than the female handball players 132.54. The t-value 1.64 is significant. The mean score of male non-handball players 141.23 is higher than the female non-handball players 146.11. The t-value 1.22 is significant.

Conclusion

The handball players have high mental health and non-handball players have low mental health. The above 25 age handball players have better mental health than the below 25 age handball players. The male handball players have better mental health than the female handball players. The male non-handball players have better mental health than the female non-handball players.

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Effect of rehabilitative exercises in improving the walking step for people with stroke, ages 40-50 years

**Prof. Suad Abed Hussein
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Saja Basim Hashim**

1- Introduction and significance of the research:

People are considered one of the most important wealth for peoples. Developed countries are racing to provide the best services to the individual regardless of their different cultures And it became equal in that (normal and disabled), and the disabled person is no longer a burden on society, but rather has become an active member in the society that can guarantee for himself, in whole or in part, the necessities of individual or social life as a result of a lack of physical forces within the muscular and physical.

Physical education has become an important aspect of civilized aspects of society, it is necessary for the normal individual and more necessary and important for the affected individual because it works to raise and improve the physical, functional and psychological state of the injured person through rehabilitation, which is the main axis in the treatment of injuries and that is because it aims to eliminate cases of functional and motor defects For the affected part and reach the maximum level

For its natural state (1:15)

1-1-Research problem:

Therefore, the aim of rehabilitating after a stroke is to improve the walking step and help the patient to re-learn the skills that he lost and may help to restore his independence and dependence on himself and improve his health through many methods of rehabilitation after a stroke, including preparing rehabilitative exercises In improving the walking step for people with stroke.

Through what became clear, the researchers resorted to using a rehabilitation program consisting of special exercises in order to improve the walking step and help the individual to control his body parts in a balanced and correct manner.

1-2-Research objectives:

- 1- Preparing rehabilitation exercises to improve the walking step for those with stroke, aged 40-50years.
- 2- Knowing the effect of rehabilitative exercises to improve the walking step for stroke sufferers aged 40-50 years.

1-3 Research hypotheses

- 1- There are statistically significant differences between the pre and post tests in the research variables of the research sample.

1-4-Delimitation and limitation:

The researchers rely on a sample of patients with a stroke of (40-50) years, of the number (5) patients. Who are attending (Neuroscience Hospital?)

In Baghdad for the purpose of the treatment, For the period from 1/7/2019 to 26/8/2019.

The researchers did not take into consideration the nutritional habits followed by those injured players or their behavior outside the times of treatment.

1.5 Defining terms

1-5-1 Rehabilitation exercises

It is a selection of physical exercises intended (orthodontic, treatment, injury or deviations - from the normal state), and leads to loss and disability in carrying out the full function of the patient with the aim of helping him to return to his normal state to complete his job (2: 276).

1-6-2 stroke

The word clot is used interchangeably with shock or stroke, (a clot is a blood clot that usually forms over a porridge deposited in the artery wall), and the thrombus may rise in size so that it causes a complete narrowing or blockage of the artery and this obstructive phenomenon leads to a deficiency in the ischemic brain that may in turn cause the clot Ischemic.

(It is a decrease in the amount of blood coming into the brain tissue and occurs as a result of a decrease in blood flow due to its blockage in the artery.) (3:27)

2- Research methodology

1-1 Research methodology

To reach objective scientific facts, it is necessary to choose the appropriate method for research. "Therefore, the researchers used the experimental method in a method of tight control of the suitability of nature in order to solve the problem of research."

The experimental approach defines "the nature of the problem is what imposes the approach that can be used."

2-2 The research sample

One of the most important things to consider in order to obtain a suitable sample to represent the community faithfully

The researchers selected the study sample from patients with (simple stroke) who completed pharmacological age (40-50).

The sample was chosen intentionally by the number (5) with injured patients, and they are in the stage of physical therapy under the supervision of (a specialist doctor) *.

2-3 Tools, means and devices used in the research:

- Arab and foreign references.

2- 4 Measurements and tests used for research.

- (Forms - Electronic calculator - Sticky tape - A camera - F (SOCKET) device

- Special bags in which weights are attached to the thigh during rehabilitation, with a weight of a quarter of a kilo, half a kilo, one kilo,

2 - Field research procedures

After the researchers reviewed the sources, references and interviews, the researchers reached a set of tests after they were presented to a group of experts, there was agreement on some of them * They are as follows:

1- F socket test

Purpose of the test: Measuring thigh pressure for the affected leg.

Tools used in the test:

(Laptop - tape measure - colored adhesive tape - portable digital camera)

Performance description:

A stroke patient places a device (F socket) directly on the thigh from the four sides of the thigh so that you read each side individually, the patient with a stroke begins to walk a meter, then the researcher will then get an electronic reading of the strength of the thigh pressure from the program in the laptop connected to the device, then the researcher will change the location of the device and install it to the other side of the thigh, (Inside and outside - left side), (inside and outside - right side).

It shall be in the following directions: -

The front side of the thigh

The Back side thigh side

The inner side of the thigh

The outer side of the thigh

2- Walking test until the effort runs out.

2-5 exploratory experience

The researchers conducted the exploratory experiment on (8/7/2019) on a sample of stroke patients consisting of (5) individuals and from the research community themselves. The purpose of the exploratory experiment was the following: -

- Ensure that tests are appropriate to the level of the research sample.

- Ensure the suitability of the proposed device.

- Identify errors and obstacles in order to overcome them.

Training the auxiliary work team * on the procedures for carrying out the work.

2-6 Pre-test

Pre-test were conducted on the research sample on Wednesday (7/10/2019) at the Neuroscience Hospital / Baghdad, taking into account the fixing of all the conditions related to the tests in terms of tools, equipment and video imaging of the patient's movement in order for the researchers to create the appropriate conditions when conducting Post tests.

2-7 main experiment

After the results of the reconnaissance experiments confirmed the safety and validity of all the measures taken and included in the scientific conditions for measurements and tests as well as their suitability for the research sample, the researchers began implementing the qualifying units that included:

- There are 18 rehabilitative units, three units per week.
- Rehabilitation units were conducted in the days (Sunday / Tuesday / Thursday).
- The qualifying time for performing the exercise is 20 minutes.
- The exercises included different resistance and weights.
- The researchers used walking exercises to improve the step.

2-8 Post-test:

Post-test of the individuals of the sample were conducted on the date of 25/8/2019 for a period of one day. The researchers took into consideration the effort of their ability to make the conditions of the Post-test similar to the conditions in which the **Pre-test** were conducted.

In terms of location and the way in which the tests were performed, data collection, organization, scheduling and subject to statistical processing.

2-9 Statistical means:

The statistical program (spss) was used to obtain the results of statistical treatment if it was extracted

1- Mean.

2 - The Post-test mean.

3- For T correlated samples tested.

4 - Standard deviation.

Table (1)

Shows the arithmetic mean, standard deviations and (T - calculated and tabulated values) for the pre and post tests of the search variables of the research sample.

indication	T result		Post-test		Pre-test		Variables	s
	Tabular	Calculated	s	x	s	x	F socket test	1
moral	2,78	4,04	39,88	187,44	45,51	195,25	front side	
moral	2,78	3,81	35,66	139,58	18,69	110,22	back side	
moral	2,78	2,98	22,85	145,35	17,24	106,13	inner side	
moral	2,78	4,67	24,46	159,26	20,31	128,84	external side	
moral	2,78	4,16	2,075	14,27	1,56	8,54	Walking test until the effort runs out.	2

From Table No. (1) We show the mean, standard deviations, and calculated and tabulated values of the research sample in the search variables, where differences emerged significantly between the pre and post tests of the research sample. The man on the front and back side, strengthening the joint muscles in the joint and correcting the motor range of the joint by taking the step, lifting and swinging the foot, and that the weights used during the rehabilitative exercises in a gradual manner helped improve the motor performance that works on Guardian joints of the man where he mentions (Abdul-Aziz Ahmed Tiger) "The changes in the body components and motor-term knee and hip are the reasons for improving muscular strength of the two men." (4: 170)

(Muhammad Adel Rushdie notes) "The increase in the range of movement in the increase in the lengthening of the muscles working in it enables these muscles to produce greater strength." (5:77)

The proposed rehabilitative exercises helped to correct and improve the corners of the hip joint for the man during the stages of walking and increase the patient's ability to control more the leg movement and coordinate its work by applying exercises that work to strengthen the working muscles and thus correct the movement angles during walking and thus improvement occurs in the walking test until the effort runs out In a correct and correct step, Adel Abdul-Basir indicated, "Exercises that depend on the full use of the locomotors range of the joint by strengthening the muscles that flex the joint, including the femoral straight muscle, the posterior muscle, and the femoral adductor muscle Which works to extend the joint

and thus increase the ability to control the joint angle and movement of transition between these angles and as soon as the time and thus increase the ability to control step walking. (6: 199).

Conclusion:

Through the results of the research, the researchers concluded that the rehabilitative exercises prepared by them have a positive effect in improving the F socket variables in all directions and consequently led to an improvement in the walking step through the walking test to run out of effort. Exercises prepared in rehabilitation centers and hospitals because of their importance in the aspect of physical therapy.

Supplement No. (1)

The exercises provided

- 1- Sitting in the chair and the therapist helps the patient get up and stand and then sit down.
- 2- Sitting in the chair and the therapist helps the patient get up and walk for a distance of 1 m.
- 3- Walking forward with the support of the therapist for a distance of 1 m.
- 4- Sitting in the chair and the therapist bends and extends the affected leg several times.
- 5- Helping the injured person to walk for 2 meters.
- 6- Attaching Ketter (a quarter of a kilo weight) to the injured leg, then allowing him to get up and sit on the chair.
- 7- From a sitting position on the chair with a ketter attached (half a kilogram of weight), the therapist helps the person get up and walk for a distance of 3 meters.
- 8- Helping the injured to walk 5 meters gradually.
- 9 - Help the patient to walk for a distance of 10 meters gradually.

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Effect of Plyometric Training for development of Speed among Foot Ball Players of University of Horticultural Sciences

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Abstract:

Plyometrics, also known as "jump training" or "plyos", are exercises based around having muscles exert maximum force in as short a time as possible, with the goal of increasing both speed and power. The objective of the study is to determine the effect of plyometric exercises for development of speed among Foot Ball Players of University of Horticultural Sciences. The sample for the present study consists of 40 Male Foot Ball Players of University of Horticultural Sciences out of which 20 are experimental group and 20 are controlled group. Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, box jumps etc were given to experimental group on alternate days i.e. three sessions per week and controlled group were given the general training. To assess the Speed Pre Test and Post Test were conducted in 50 Meters Run..This study shows that due to the plyometric exercises there is a improvement of foot ballexperimental group in speed and football controlled group is decreased in performance ability and speed due to the general training. Key words: plyometric exercises, speed, explosive power etc

Introduction:

Plyometrics, also known as "jump training" or "plyos", are exercises in which muscles exert maximum force in short intervals of time, with the goal of increasing power (speed-strength). This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" manner, such as in specialized repeated jumping. Plyometrics are primarily used by athletes, especially martial artists, sprinters and high jumpers, to improve performance, and are used in the fitness field to a much lesser degree. Plyometrics is a suitable form of power training for many team and individual sports. High Jumpers today are bigger, faster and more explosive than ever before. Explosive Strength defined as the rate of force development at the onset of the contraction. The goal of training Plyometric training is to improve the rate of force development to create more force in less time for the optimum results

Method:

The purpose of the present study to find out the effect of plyometric exercises for the development of speed among Foot Ball Players of University of Horticultural Sciences. The sample for the present study consists of 40 Male Foot ball Players of University of Horticultural Sciences out of which 20 are experimental group and 20 are controlled group. Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, hurdle jumps etc were given to experimental group on alternate days i.e. three sessions per week for eight weeks along with the foot ball training and controlled group were given the general training of foot ball Pre Test and Post Test were the 50 M Run to measure the speed among experimental group and controlled group.

Result:

This results of the study shows that due to the plyometric training there is a improvement of experimental group in the Speed and controlled group is decreased in performance due to the general training.

Table No. I: Mean values of 50 M run test between experimental and control group of Foot Ball Players

Variables	Group	Pre Test Mean \pm SD	Post Test Mean \pm SD	t	P - Value
50 M Run Test	Experimental	7.51 \pm 0.294	7.23 \pm 0.262	4.58	0.000
	Control	7.64 \pm 0.376	7.73 \pm 0.408		

*Significant at 0.05 level

The Experimental Group of 50 M Run Men is 7.51 in Pre Test and Controlled Group mean is 7.64 in Pre Test there is a difference of 0.13 in Pre Test. The Experimental Group Mean is 7.23 in Post Test and Controlled Group mean is 7.73, the Experimental Group mean in Post Test in 50 M Run is decreased from 7.51 to 7.23 the control Group mean in Post Test in 50 M Run is increased from 7.64 to 7.73. Due to the Plyometric Training the Experimental group has improved a lot.

Discussion:

The Strength, Speed and Endurance are the important abilities for successful performance. The dominant ability is the one from which the sport requires higher contribution to achieve the high success in the sports and games. Most sports require peak performance in at least two abilities. The Relationships among strength, Speed, and endurance create crucial physical athletic qualities. Specific development of a biomotor ability must be methodical. A developed dominant ability directly or indirectly effects the other motor abilities. When an athlete develops strength he may experience a positive transfer to speed and endurance. On the other hand, a strength training program designed only to develop maximum strength may negatively effect the development of aerobic endurance.

Conclusions:

It is concluded that the due to the Plyometric training develops the strength and power in the legs. It also improve the co-ordination in the arms and legs and promotes in developing the Speed. In this Study it is concluded that due to the Plyometric Training there is a development of Speed among Foot ball Players.

Recommendations:

Similar Studies can be conducted among females and in other Sports and games. This study is useful to the Coaches to prepare the conditioning program to improve the motor abilities of the Team sports like foot ball Hockey etc.

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