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Research Article

The effect of agility ladder drill program on dribbling performance and agility of 10 to 12 male football players

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ABSTRACT

In Thailand, each range of age in football players are different developmental patterns. Recent studies found that the agility and dribble ability of young football players was low. For that reason, the objectives of this research were to compare and develop agility and dribble ability by using a ladder drill program. This research population was 107 athletes of the Academy Football Club, Hat Yai District, Songkhla Province, aged 10–12 years (four clubs). This study's instruments consisted of Parson's ladder drill program and the researcher's ladder drill program. Analyzed data by mean and standard deviation and compared dribbling ability and agility averages values after 8 week training between groups using the *t*-test independent and comparing the averages values of dribbling ability and agility before and after 8 week training in the group using Paired *t*-test. The study's findings were as follows^[1] The dribbling ability and agility within the Parsons ladder drill group and the researcher's ladder drill program group are significant. Which after 8 week of training, the average value was better than before training.^[2] There is no significant dribble ability in the Parsons ladder drill program group and the researcher's ladder drill program group. However,^[3] the agility after 8 weeks of training the Parsons ladder drill program better than researcher's ladder drill program group. This research can improve dribbling and agility performance for the athlete, coach, and people interested in football.

Keywords: Dribbling, Agility, Ladder drills training program

INTRODUCTION

In Thailand, football is the most popular and competitive sport. As a result, coaches must study and search for methods in order to win a success (Thubucha, 2015). Football is the sport that can build reputation and income for oneself, family, and nation (Bannongsa, 2018). Being a successful athlete must require great physical fitness related to football, such as speed, muscle power, and agility. Agility is the important factor supporting the skills development in football to be better, namely, a dribble (Srihara, 2012). An activity assisting the body to be agileris the ladder drills program which is looked upon as a pattern of foot movement practice. Besides, it stimulates muscle contraction so rapidly that the trained person can run faster (Thonglong, 2017). The dribble is an essential skill and indefinite pattern because each player can improve the dribble ability by individual-specific arrangement. Therefore, this will provide optimum efficiency.

The performance of football players at each level is different. The previous experiment showed that in Thailand, the individual skill of the youth football players in each age range was at low level (Nilsri, 2019). For this reason, the training program must plan systematically. According to training physical fitness in terms of agility, the researcher found that children increase agility before age of 12 years old. During the latter 3 years, agility will not improve, and perhaps reduce, until the end of the growth stage (Vejphat, 1993). Therefore, providing appropriate trainings during childhood supports the agility development (Palawiwat, 1993).

According to the study and related research, including interviewing coaches who controlled the youth football team in the 10–12 age range in Hat Yai District, Songkhla Province, all agreed that to have the better dribble, football players need to acquire agility. To enhance the unique capacity of dribble to the footballers for advance in the future, the researcher interested in studying and creating the ladder drills training program for dribbling ability and agility of male footballers in the 10–12 age range of the Youth Football Academy Training Center, Hat

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OBJECTIVES OF THE STUDY

1. To create the ladder drills program toward the dribbling ability of male footballers in the 10–12 age range of the Youth Football Academy Training Center, Hat Yai District, Songkhla Province.
2. To compare the dribbling ability and agility of the group that was trained by Parsons' ladder drills program and the group that was trained by the researcher's ladder drills program between before and after the 8 week training.
3. To compare the dribbling ability and agility of the group that was trained by Parsons' ladder drills program and the group that was trained by the researcher's ladder drills program after the 8 week training.

RESEARCH HYPOTHESES

1. There is a significant difference in the dribble ability and agility between the group that was trained by Parsons's ladder drills program and the group that was trained by researchers' ladder drills program before and after the 8 week training.
2. There is a significant difference in the dribble ability and agility between the group that was trained by Parsons's ladder drills program and the group that was trained by researchers' ladder drills program after the 8 week training.

METHODOLOGY

Population

107 Football players in the 10–12 age range at the Youth Football Academy Training Center, Hat Yai District, Songkhla Province.

Data Collection Method

1. Take a test of the dribble ability to divide players into two groups and use TatchanonChindapuk's dribble ability test, which was sorted as follows.
 - Control group is a group that was trained by Parsons' ladder drills program. It took 8 weeks, 3 days a week, namely Monday, Wednesday, and Friday, and 30 min a day, including a total of 12 moves.
 - Experiment group is a group that was trained by the researcher's ladder drills program. It took 8 weeks, 3 days a week, namely Monday, Wednesday, and Friday, and 30 min a day, including a total of 10 moves.
2. Take a test of agility of each Youth Football Academy Training Center by using the test of the Department of Physical Education to find mean and standard derivation before training (Pre-test).

3. Both groups of the population took a test of the training program, practicing 3 days a week, namely Monday, Wednesday, and Friday. The total duration was eight weeks, taking time after school from about 5:00 pm-6:00 pm.
4. Take a test of dribble and agility ability after 8 week training (Post-test) by using the same test as the pre-test, and then analyze the data.

Instruments

1. The ladder drills program that the researchers created (face validity and reliability = 0.90)
2. Parsons's ladder drills program, BrianMac Sports Coach. (2021, April 23). Agility. Retrieved from <https://www.brianmac.co.uk/agility>
3. Agility test, Zig-Zag Run (Sport Science Bureau, 2562) (validity = 1.00) (reliability = 0.81)
4. Dribbling ability test (Chindapuk, 2016) (content validity = 0.91).

Data Analysis

The data, which were obtained from before and after the 8 week training of the sample group, were analyzed by the statistical package to find basic statics, namely mean and standard deviation of the scores of the control and experiment groups' dribble ability and agility before and after 8 week training, *t*-test independent, and paired *t*-test.

RESULTS

After 8 week training, the data of the group that was trained by Parsons's ladder drills program and the group that was trained by the researchers' ladder drills program can show the objective analysis result as follows.

DISCUSSION

1. There was a significant difference in the dribble ability and agility between the group that was trained by Parsons' ladder drills program and the group that was trained by the researcher's ladder drills program before and after the 8 week training. It would be that because Parsons' ladder drills program and the researcher's ladder drills program are the practice of changing the direction movement and also the speed of the stride. This practice affected dribbling ability and agility of the male footballers to be better because agility is the main factor of dribble skill, which is related to this statement: Wongsut (2017) said that the dribble ability is the practice that football players must train actively. Furthermore, Polpairin (2015) studied the consequences of agility training for the dribble ability and compared the result of agility training by games of the football players who were in the junior high school in

Table 1: Comparison of the dribble ability before and after training of the 10–12 years old male footballers of the Youth Football Academy Training Center, Hat Yai District, Songkhla Province

Group	Before training		After training		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
Parsons' ladder drills program	23.29	4.63	22.17	3.36	2.60	0.012*
The researcher's ladder drills program	24.99	3.86	22.67	3.03	6.51	0.001*

P*<0.05Table 2: Comparison of the agility before and after 8 week training of the 10–12 years old male footballers within the group that was trained by Parsons' ladder drills program and the group that was trained by the researcher's ladder drills program at the Youth Football Academy Training Center, Hat Yai District, Songkhla Province**

The group	Before training		After training		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
Parsons' ladder drills program	21.37	3.86	20.56	2.12	3.66	0.001*
The researcher's ladder drills program	23.17	1.50	21.91	1.69	4.44	0.001*

P*<0.05Table 3: Comparison of the dribble ability and agility after 8 week training of the group that was trained by Parsons' ladder drills program and the group that was trained by the researcher's ladder drills program.**

Test pattern	Researchers' program		Parsons's program		<i>t</i>	<i>P</i>
	Mean	SD	Mean	SD		
Dribble ability	22.67	3.03	22.17	3.36	0.80	0.42*
Agility ability	24.99	3.86	23.29	4.63	2.04	0.043**

P*>0.05, *P*<0.05

the 12–15 age range. The result revealed that after 4 week training, the agility training group had less time average than the group that was practiced by dribbling game.

- There was a significant difference in the agility of the group that was trained by Parsons' ladder drills program and another group that was trained by the researcher's ladder drills program before and after 8 week training. After training, the agility of both groups, male footballers, was better than the previous. Perhaps, because the ladder drills program had procedures and training methods which are related to this statement: Krabuanrat (2014) and Boonchai (1997) said that overtraining can damage the function of the cell. Apart from the age of footballers, the original physical ability of the footballers is to be considered. After 2–3 weeks of training, the body will be developed and changed for the better. Besides, after 6 week training, the body can adapt and have more strength, so that muscles can contract more strongly and rapidly.
- There was no significant difference in the post-training dribbling ability of the group that was trained by Parsons' ladder drills program and another group that was trained by the researcher's ladder drills program. The result indicated that both training programs can also practice the dribble. This result may appeared this way because both training programs are similar. For instance, using the same ladder drills and training characteristics contains rapid movement for changing the direction. These affected

the dribbling skill to both groups that trained by Parsons' ladder drills program and another group that was trained by the researcher's ladder drills program. For this reason, the result of the findings was not different, which was related to this statement: Thonglong (2015) studied the result of the application of using the ladder drills and Thai traditional play to agility, speed, and reaction time of futsal players of the first group that was trained by the ladder drills, the second group that was trained by Thai traditional play, and another group that was trained by both programs. After 4 week and 8 week training, physical fitness in terms of speed and reaction time were not different.

- There was a difference in the agility of the group that was trained by Parsons' ladder drills program and another group that was trained by the researcher's ladder drills program. Parsons' ladder drills program had a higher average mean. Although both ladder drills have a similar quality, there was a point being contrasting. That is, footballs were not used in Parsons' ladder drills program. However, the ladder drills program of the researchers had football in the training process. The researcher's program might developed the agility in efficiently, which corresponded to this explanation: Krabuanrat (2002) mentioned that a ladder drill is a specialized pattern of training device for foot movement. It can help the nervous system stimulates the muscles to contract quickly, improve the movement of the foot so efficiently that trained players

obtain the rapid running skill, and support good agility. Additionally, it is also the practice that requires accuracy and precise performance. It should not be accompanied by other devices while training. It may affect the ability to move from one to another.

Obviously, the findings showed that training by the ladder drills program for dribbling ability and agility of the male footballers in the 10-12 age range can develop dribbling and agility skills. Accordingly, if the athletes show their ability in playing or competing efficiently by taking 8 week training time in general, 3 days a week, the athletes will change to be better players which leads to even more development.

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Research Article

The level of awareness and psychological practices of MSU-Marawi varsity athletes

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ABSTRACT

This study aimed to determine the relationship between level of awareness and psychological practices among MSU-Marawi varsity athletes enrolled during the second semester, A.Y. 2018–2019. Age, ethnicity, type of sports, playing experience, and level of competition were the factors considered influential to the relationship of the primary variables and were used as the moderating variables. This utilized a descriptive-correlation method type of research. The research instrument used was a questionnaire consisting of three parts. The first part was the demographic profile of the respondents composed of age, ethnicity, type of sports, playing experience, and level of competition. The second part was a self-made questionnaire for level of awareness containing five sub-parts: Goal setting, mental imagery ability, self-confidence, concentration ability, and self-talk ability (Cronbach's Alpha. 952). The third part was a self-made questionnaire on psychological practices of the respondents (Cronbach's Alpha. 818). To measure the significant relationships between and among the variables, Pearson Product Moment Correlation Coefficient or Pearson r and Chi-square were used. The following were the findings of the study: The majority of the respondents were 20–21 years old; the most were non-Muslims; the most had 3–4 years of playing experience; the majority attended regional sports competitions; the majority had high level of awareness in terms of goal setting; the most exhibited very high awareness in mental imagery ability; the most displayed high awareness when it came to self-confidence; the most were moderately aware in terms of concentration ability; the majority had very high level of awareness in self-talk ability; the majority were highly aware when talking about the overall level of awareness; and the majority were moderately aware of the psychological practices. In terms of relationships, it was found out that goal setting, mental imagery ability, self-confidence, concentration ability, self-talk ability, and overall awareness were significantly correlated with psychological practices of the MSU-Marawi varsity players.

Keywords: Level of awareness, Goal setting, Mental imagery ability, Self-confidence, Concentration ability, Self-talk ability

INTRODUCTION

Sports have been widely embraced and accepted as part of human existence. People participate in sports activities for some purposes which include: To express their feelings and emotions, for recreation or leisure that allows them to recreate, recharge, and refresh their selves after those stressful and occupying jobs. Nonetheless, people participate in sports activities for body development, personal involvement, and social involvement. Sports improve the mental, physical, emotional, social, and spiritual aspects of individuals. Moreover, sports all over the

globe become a passage in promoting peace and unity and amidst cultural diversity among every nation.

As athlete pursues the ability of their mind in acquiring mental skill, psychological preparation and training are needed to toughen and condition their mind. Athletes need to energize it properly and have the correct tools to maintain the engine to gain high result of their performance. Athletes who are mentally and physically prepared have developed the mental mindset of expecting topmost performance or success. While mental training is not a new concept, many athletes have not taken the full advantage and discovery of their own inner strength (Stuart, 2010).

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Successful performance of athletes has always attributed by the sports psychologists to many factors among the various

sports scientists who are involved in the preparation of athletes for competitions. The ability of athletes to complement the various factors to their advantage is a major concern to the field of psychology. In confronting negative factors that inhibit their performance, mental preparation strategies are seen to be effective way of utilizing tactics among elite athletes. If young athletes were psychologically prepared, they would easily take over when the old players were retrieved. However, several benefits with mental practices while preparing athletes for competition and improving their quality of life have identified in some research literature (Jacobs as cited by Adeyeye, 2013).

Moreover, one of the best practices to improve sporting performance is through mental preparation. Mental preparation is the segment of sports psychology that concentrates specifically on helping athletes break through the barriers that keeping them from performing optimally (Adeyeye, 2013).

Accordingly, as most observed by the coaches, 50% of the preparation of athletes to gain victory against their opponent with the same physical ability depends on the psychological preparation of athletes. Research in sports psychology has revealed that mental training facilitates successful performance and enhances athletes' personal well-being (Behnke, Tomczak, Kaczmarek, Komar, and Gracz, 2009). Psychological preparation can gain new meanings and views and can be a challenge of optimization of athletics performance (Cucui and Cucui, 2014). All the strategies and techniques used in training and education to increase the mental ability and personality development of athletes, corresponding to the requirements of an event/sport, to achieve superior effects, and results in training and competition are all involve in the psychological preparation of athletes (Epuran as cited by Cucui, 2013).

In addition, sports enthusiasts are motivated to join in sports participation, and competitions to present and enhance our sporting performance. Sports, accordingly, are all forms of usually competitive activity which through casual or organized participation, it aims to use, maintain, or improve physical ability and while providing entertainment to participants, and in some cases spectators (Sciencedaily, 2019).

Nowadays, athletes in different aspects of sports attend training for pleasure and skills improvement. The most of them give more emphasis on physical skills in training rather than mental ability. Successful athletes succeed because they were able to balance and maintain their mental ability and physical skill, it is clearly stated that both psychological and physical skills cannot be separated for it provides success to the athlete success to their sport. As above-mentioned, 50% of the athlete's ability to defeat their opponents with the same physical skills depends on mental skills. Therefore, psychological training/practices not only physical training should be given more attention. Furthermore, this study was conducted to find out

some factors that inhibit an athlete's performance through psychological practices and to research if athletes nowadays, more specifically the Mindanao State University Main Campus varsity players, were aware of the importance of psychological practices that make them able to achieve topmost expected performance.

RESEARCH DESIGN

The research design used in this study was descriptive-correlational that aimed to find out the relationship between level of awareness as the independent variable and psychological practices as dependent variable.

Furthermore, it aimed to determine the relationship of age, ethnicity, playing experience, type of sports, and level of competition as the moderating variables to the two main variables.

SCOPE OF RESEARCH

The focus of this study was to investigate the relationships between the level of awareness as independent variable and psychological practice as dependent variable and the moderating variables of age, ethnicity, playing experience, type of sports, and level of competition among MSU-Marawi varsity athletes.

RESEARCH RESPONDENTS

In this study, there were 121 male and female athletes in arnis, athletics, badminton, basketball, baseball, chess, dance sports, taekwondo, table tennis, softball, soccer, and volleyball who competed in the 2019 Mindanao State University System Athletic Association Friendship Games (2019 MSUSAA Friendship Games) held at the MSU-Maguindanao campus.

RESEARCH INSTRUMENTS

The research questionnaire was divided into three parts. The first part contained the personal background of the respondents, which consisted of the following: Respondent's name (optional), age, ethnicity, playing experience, type of sports, and level of competition. The second part was a self-made questionnaire on the level of awareness which consisted of 45 statements with five sections such as (1) goal setting, (2) mental imagery ability, (3) self-confidence, (4) concentration ability, and (5) self-talk ability. The third part was another self-made questionnaire about psychological practices, which comprised of 15 statements. Both self-made questionnaires were pilot tested (Cronbach's Alpha of .952 and .818, respectively).

DATA COLLECTION

The researcher collected the data in the following order:

1. The researcher wrote a letter of request to the Chairperson of the Department of Athletics of the College of Sports, Physical Education and Recreation with the purpose of asking permission for the conduct of the study among varsity athletes
2. Another letter-request was given to the assigned coaches in each event to allow the researcher to conduct his study among his/her players
3. A letter-request for the identified respondents with the questionnaire was handed personally to the athletes. A short briefing was conducted to the respondents for instructions and clarifications, if any
4. After retrieval, scoring, and tallying of data, computer software was used in analysis of data.

STATISTICS USED IN THE DATA ANALYSIS

The descriptive statistics such as frequency and percentage distribution were used in this study. For the relationships of the variables, Pearson Product Moment Correlation Coefficient or Pearson r and Chi-square were used.

RESEARCH RESULTS AND RESEARCH DISCUSSION

The Moderating Variables

Age

Sixty respondents or 49.5% were 20–21 years old, 28 respondents or 23.1% were 22–23 years old, 25 respondents or 20.6% were 19 years old or younger, while eight respondents or 6.6% were 24–25 years old. The results showed that the age of the respondents varied.

Ethnicity

Sixty-eight respondents or 56.2% were non-Muslims while 53 respondents or 43.8% were Muslim athletes.

Type of sports

There were 13 types of sports that MSU-Main varsity athletes were engaged in: Basketball had 18 athletes or 14.9%, volleyball had 16 athletes or 13.2%, athletics had 13 athletes or 10.7%, softball had 11 athletes or 9.7%, soccer had ten athletes or 8.3%, and speak takraw and baseball had nine athletes each or 7.9%. Other sports teams had six athletes each or 5.0% such as: Table Tennis, badminton, taekwondo, arnis, and chess, while dance sports had five athletes or 4.1%.

Level of competition

A very high frequency of 113 respondents or 93.39% took part in regional sports competitions while only eight respondents or 6.6% attended in national sports competitions.

The Independent Variables

Goal setting

There were 51.3% respondents who had a “high level of awareness” in goal setting, followed by 38.0% who had “very high level of awareness,” and 9.9% who displayed “moderate level of awareness.” The result implies that the majority of the respondents had “high level of awareness” in goal setting. This also concludes that these athletes are aware that they should set short-term goals for their selves; they should set goals to help them do their personal best, as well as goals that are set should be challenging but achievable. Moreover, the athletes who have a very high level of awareness about goal setting are athletes who focused on performance enhancement and instilling mental skills to attain ultimate performance and apply goal setting to improve their performance and prepare for competitions.

Mental imagery ability

The most of the respondents or 48.8% had “very high level of awareness” in terms of mental imagery ability, followed by the respondents with “high level of awareness” with 36.4%. There were 14.0% who manifested “moderate level of awareness.” Therefore, the most of these athletes had very high level of awareness in mental imagery ability. In addition, it can be said that the most of them are aware that creating alternative plans/strategies in their heads before their competitions are a good ability to master as well as refining some skills in their heads in trainings. Finally, they make corrections to their physical skills in their heads.

Self-confidence

The most of the respondents or 47.9% showed a “high level of awareness” in terms of self-confidence while 28.9% had “moderate level of awareness,” followed by 22.4% of the respondents who had “very high level of awareness.” Therefore, it implies that almost the majority of the respondents displayed high level of awareness in terms of self-confidence. This also implies that the most of them are aware that they should fear nothing, should have clear vision for why they compete and train, and should follow their path. In addition, these athletes manifesting high level of awareness of self-confidence can cope with distractive factors and unexpected events.

Concentration ability

The most of the respondents or 37.2% had “moderate level of awareness” in terms of concentration ability, followed by 26.5% who manifested “low level of awareness.” There were 14.0% each for “high level of awareness” and “very low level of awareness.” Finally, only 6.65% of the respondents had “very high level of awareness” in concentration ability.

Therefore, the most of the respondents were moderately aware of concentration ability. This concludes that, at some points when they compete or train, these athletes are aware that they should not be easily distracted by the background noises and that they should not easily distracted by visual stimulation, as well as not easily being easily distracted by their internal thoughts or feelings. Furthermore, these athletes can play well rather than being distracted by the crowd.

Self-talk ability

The majority of the respondents or 52.95% of the respondents had “very high level of awareness” in terms of self-talk ability. There were respondents who had “high level of awareness” comprising 32.2%, followed by 13.2% who exhibited “moderate level of awareness.” Moreover, “low level of awareness” and “very low level of awareness” in self-talk ability had the same percentage of 0.8%. In conclusion, the most of the respondents had a very high level of awareness in self-talk ability. They talk to their selves to concentrate more fully on the competition and/or training; they also talk to their selves to enhance their self-confidence; and lastly, they talk to their selves to correct their mistakes.

Overall level of awareness

The majority or 58.0% of the respondents had “high level of awareness,” followed by “very high level of awareness” with 38.0%. Both “moderate” and “low level of awareness” had the same percentage of 1.7%. Therefore, the majority of the respondents’ overall awareness ranged between high to very high.

The Dependent Variable

Psychological practices

There were majority or 61.2% respondents who were engaged in “moderate” level of psychological practices,” while 35.5% of the athletes were involved with “high” level of psychological practices,” followed by “very high” level of psychological

practices with 2.5%. It implies that there were respondents who were moderately aware of psychological practices. In addition, because they were just moderately aware and not conversant of psychological practices, when they get quite nervous this can have negative impact on their performance. Another, when they think of the opposition this can put them off the game. Finally, they are realistically optimistic before competition.

Correlation between Variables

As shown in Table 1 (in the next page), all moderating variables disposed no significant relationship to all independent variables because the obtained $P > 0.05$ ($P > 0.05$) or all the P -values do not meet the qualifying standard of 0.05 level significance ($\alpha = 0.05$). Therefore, it can be interpreted that the respondents, even with varied age, ethnicity, playing experience, type of sports, and level of competition, demonstrated similar goal setting, mental imagery ability, self-confidence, concentration ability, self-talk ability, and overall awareness.

As shown in Table 2, the relationships between variables are all not significant. Thus, this implies that age, ethnicity, playing experience, type of sports, and level of competition do not have significant relationship to the psychological practices. This means that even if the athletes are older and have more experience in playing, and matured enough compared to neophyte, it does not mean he is psychologically advanced. Athlete’s ethnicity does not conclude that they have differences in psychological practices, in fact there are non-Muslim Olympians who succeeded on winning many times and so as Muslim athletes. Diverse sports have different ways of practicing tactics to gain victory against opponents; this does not imply that softball players are psychologically advanced than basketball players in terms of psychological practices. Moreover, successful athletes like Manny Pacquiao famously known all over the globe because of his expertise in boxing, can be clearly seen that he has obtained both psychological

Table 1: Correlation between moderating and independent variables

Independent variables	Moderating variables									
	Age		Ethnicity		Playing experience		Type of sports		Level of competition	
	<i>P</i> -value	<i>r</i> -value	<i>P</i> -value	<i>r</i> -value	<i>P</i> -value	<i>r</i> -value	<i>P</i> -value	<i>f</i> -value	<i>P</i> -value	<i>r</i> -value
Goal setting	0.924	−0.009	0.922	−0.099	0.090	0.155	0.748	0.700	0.090	0.155
Mental imagery ability	0.441	−0.071	0.380	0.381	0.228	0.110	0.676	0.774	0.418	0.074
Self-confidence	0.553	−0.054	0.857	0.017	0.100	0.150	0.549	0.900	0.304	0.094
Concentration ability	0.920	0.009	0.061	0.171	0.550	−0.055	−0.065	1.755	0.858	−0.016
Self-talk ability	0.534	−0.057	0.656	0.041	0.053	0.176	0.483	0.969	0.130	0.138
Overall level of awareness	0.424	−0.073	0.715	0.034	0.163	0.533	0.917	0.533	0.127	0.139

^{NS}Correlation is not significant at the 0.05 (2-tailed), ^{**}Correlation is significant at the 0.05 level (2-tailed)

(mental) and physical skills. This denotes that, in this study, intramural athletes as opposed to national athletes do not have differences in terms of psychological practices.

As presented in the Table 3, all the independent variables of goal setting ($P = 0.000$), mental imagery ability ($P = 0.000$), self-confidence ($P = 0.000$), concentration ability ($P = 0.000$), self-talk ability ($P = 0.000$), and overall awareness ($P = 0.000$) confirmed significant relationship to the dependent variable of psychological practices. All the significant relationships associating between the correlated variables are linear since all the obtained r -values are positive. Meaning, as the goal setting, mental imagery ability, self-confidence, concentration ability, self-talk ability, and overall awareness are getting higher, the psychological practices are getting better.

A major tenant of sports and performance psychology is that mental skills are important determinants of performance involving cognitive (thinking) abilities perfected through

mental skills training. The tenant of which is to provide a set of psychological strategies for dedicated improvement of performance, successfully recovering from sport injury, and maintaining a positive life-balance between sport and other aspects of life, including family. Professional and collegiate athletes are familiar with the term, but not all have the same conceptual definition of mental skills. Mental skills are internal capabilities that help an athlete improve performance by learning to control their minds efficiently and consistently as they execute attainable goals. Mental skills training is the process that provides the methods and techniques to improve performance by developing self-confidence, and creating a positive mind-set through goal setting, positive self-talk, visualization, imagery, and self-efficacy. Goal setting is the process of setting down to five action-oriented objectives that are to be attained by reaching specified milestones. In effect, goals are the cornerstone of achievement necessary to accomplish, attain, and achieve an objective (Graham as cited in Mental Skills and Toughness, n.d.).

RESEARCH RECOMMENDATIONS

Based on the findings of the study, the following recommendations are presented:

1. The Department of Athletics of the College of Sports, Physical Education and Recreation in Mindanao State University, in collaboration with the coaches, should regularly conduct a lecture about psychological practices, goal setting, mental imagery ability, self-confidence, concentration ability, and self-talk ability so that all involved in the varsity sports program will be made aware of their importance to the performance of athletes, therefore, making applications to these practices
2. The coaches in different events should include psychological practices during their regular training sessions to enhance the athletes' psychological well-being to try to meet their topmost performance, as such, the coaches and assistant coaches should motivate their athletes to set their goals regularly as well as track their progress daily
3. The athletes should attend seminars/trainings that focus on their psychological well-being. Rehearse their mental ability involving goal setting, mental imagery (visualization), self-confidence, concentration, and self-talk.

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Table 2: Correlation between moderating and dependent variables

Moderating variables	Dependent variables		
	Psychological practices		
	<i>P</i> -value	<i>r/f</i> -value	Relationship
Age	0.829	0.020	NS
Ethnicity	0.874	-0.015	NS
Playing Experience	0.163	0.128	NS
Type of Sports	0.246	1.271	NS
Level of Competition	0.227	0.111	NS

^{NS}Correlation is not significant at the 0.05 (2-tailed), ^{**}Correlation is significant at the 0.05 level (2-tailed)

Table 3: Correlation between independent and dependent variables

Independent variables	Dependent variables		
	Psychological practices		
	<i>P</i> -value	<i>r/f</i> -value	Relationship
Goal setting	0.000	0.359	**
Mental imagery ability	0.000	0.360	**
Self-confidence	0.000	0.538	**
Concentration ability	0.000	0.340	**
Self-talk ability	0.000	0.311	**
Overall awareness	0.000	0.412	**

^{NS}Correlation is not significant at the 0.05 (2-tailed), ^{**}Correlation is significant at the 0.05 level (2-tailed)

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Research Article

Characteristics of the psychological function assessment indicators recovery of high-level track and field athletes in maximum capacity exercising

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ABSTRACT

Four indicators were chosen to assess the psychological function recovering ability of high-level track and field athletes in maximum capacity exercising. On that basis, we evaluated the progress of the psychological function recovery of the research subjects in maximum capacity exercising at the following times: Before exercising, after warming up, while exercising and 10 min after exercising.

Keywords: Psychological function, Track and field, Recovery, Athletes

PROBLEM RESEARCH

Regularly exercise and play sports will bring about changes in the direction of adapting to benefit the body. Those changes are specifically expressed through indicators of bodily functions and psychological functions. Today, modern equipment system is used in sports, which allows us to accurately determine the practice level and the indicators to evaluate the psychological function of athletes after physical exercising, as well as the effectiveness of the training and teaching work. This is also an important basis for training athletes.

In their researches, foreign authors have identified the law of recovery after physical exercising, fatigue characteristics after an amount of exercises in different capacity zones, the time required to end the recovery of various psychological processes during the resting period following muscles exercising, as well as the means and methods of recovery for an athlete following exercises and competitions. However, in Vietnam, this research has not yet been paid attention to by any author.

With the existing modern machinery system, we conducted the study: Characteristics of the psychological function recovery of high-level track and field athletes in maximum capacity exercising.

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METHODS

The research used the following methods:

- Method of analyzing and synthesizing documents
- Interviewing method
- Method of pedagogical examination
- Mathematical statistics method.

RESULTS AND DISCUSSION

Selecting Indicators to Assess the Psychological Function of High-level track and Field Athletes in Maximum Capacity Exercising

Using the method of analyzing and synthesizing documents, interviewing method, we selected 06 indicators to evaluate the psychological function of high-level track and field athletes in maximum capacity exercising, including:

1. Simple reflex (ms)
2. Complex reflex (ms)
3. Leg muscle force feeling 50% (%)
4. 10s hand trembling level (times).

We conducted the research on 20 level-1 track and field athletes and grandmasters, including 10 male athletes aged 18–20 and 10 female athletes aged 16–17.

The selected exercise representing the maximum capacity exercise: Running 100 m

We proceeded to take the data to evaluate the characteristics of the psychological function recovery process of high-level track and field athletes in maximum capacity exercising at times: Before exercising (before athletes begin practice activities); After warming up (right after finishing the warm-up); While exercising (10 s after completing the maximum capacity exercise) and 10 min after exercising (10 min after completing the maximum capacity exercise).

Characteristics of the Psychological Function Recovery of High-level Track and Field Athletes in Maximum Capacity Exercising

Characteristics of the indicators reflecting the psychological function of high-level track and field athletes before exercising in maximum capacity

Before conducting the test on athletes in maximum capacity exercising, we tested the psychological function assessment indicators of the athletes. The results are presented in Table 1.

Table 1 shows that: Before exercising, the characteristics of the neuropsychological function assessment indicators of the athletes in selected sports are better than those of normal Vietnamese.

Characteristics of the indicators assessing the neuropsychological function of high-level track and field athletes after warming up in average capacity

Before conducting the test on athletes in average capacity, immediately after taking blood for the biochemical and hematological indicators test, the research examined

the psychological function assessment indicators of the athletes.

After warming up in average capacity, the psychological function assessment indicators of the athletes also changed in a much better direction compared to the time before exercise, more suitable for exercising activities. Specifically: They became more flexible, had better maximum muscle force and a more accurate feeling of muscle force. However, the 10 s hand trembling level (times) had insignificant changes.

Characteristics of the indicators reflecting the psychological function of high-level track and field athletes while exercising in maximum capacity

Immediately after completing the exercising activity (10 s after completing the test), we conducted a psychological test on athletes of selected sports in exercising activities to assess the psychological function of high-level athletes in different sports in maximum capacity exercising.

Immediately after completing the exercising activity in average capacity, the indicators reflecting the psychological function of the athletes changed strongly and most of them changed in the downward direction compared with the time before conducting the test.

Reflex time assessment indicators: right after the 100 m running activity, there were some athletes who performed more flexible reflexes than before the test, but there were also athletes who reacted slowly and made more mistakes than the time after warming up.

Table 1: Characteristics of the indicators assessing the neuropsychological function of high-level track and field athletes before exercising

S. No	Indicator		Male (aged 18–20) (n=10)		Female (aged 16–17) (n=10)	
			σ		σ	
1	Single reflex (ms)		199.12	36.27	224.72	39.07
2	Complex reflex (ms)		227.33	22.89	258.42	72.84
3	Leg muscle force feeling 50% (%)	Fmax (KG)	149.15	46.25	98.78	20.06
		Inaccurate feeling	2.45	0.57	2.67	0.53
4	10s hand trembling level (times)	1	0.00	0.00	0.00	0.00
		2	0.00	0.00	0.00	0.00
		3	0.30	0.95	0.10	0.32
		4	0.00	0.00	0.90	1.66
		5	0.40	1.26	0.20	0.42
		6	0.20	0.42	0.70	1.25
		7	0.80	1.87	1.50	2.42
		8	1.40	2.41	1.70	1.70
		9	3.20	5.27	1.50	1.65

Leg muscle force feeling indicator: After running 100 m, there was a decrease in the maximum muscle force as well as in the accuracy when feeling the force.

10s hand trembling level (times) assessment indicator: In track and field athletes, there was a significant change in the 10 s hand trembling level (times) after exercising in maximum capacity.

Characteristics of the indicators reflecting the psychological function of high-level track and field athletes 10 min after exercising in maximum capacity

10 min after exercising in maximum capacity, we proceeded to test the athletes' psychological function, and compared it with the results obtained from the athletes before conducting the test.

10 min after completing the exercising activity in maximum capacity, the characteristics of the indicators assessing the neuropsychological function of the athletes had completely recovered compared to the time before exercising. Particularly, the indicators of reflex time, muscle force feeling and maximum muscle force tend to be higher than the time before exercising in maximum capacity. Thus, it can be said that 10 s after exercising in maximum capacity, the athletes' neuropsychological function had completely recovered, even many indicators had recovered beyond the limit.

CONCLUSION

Before exercising in maximum capacity, the characteristics of the indicators assessing the neuropsychological function of the athletes of selected sports were better than those of average Vietnamese.

After warming up in average capacity, the indicators assessing the athletes' neuropsychological function also changed in a much better direction than the time before exercising,

becoming more suitable for exercising activities. The reflexes were more flexible, the maximum muscle force was better, and the muscle force feeling was also more accurate. However, the 10 s hand trembling level (times) did not change significantly.

While exercising in maximum capacity, the indicators reflecting the athletes' neuropsychological function changed strongly and most of them changed in a downward direction compared to the time before conducting the test.

10 min after exercising maximum capacity, the indicators assessing the neuropsychological function of the athletes had completely recovered compared to the time before exercising. Particularly, the indicators of reflex time, muscle force feeling and maximum muscle force tend to be higher than the time before exercising in maximum capacity. Thus, it can be said that 10s after exercising in maximum capacity, the athletes' neuropsychological function had completely recovered, even many indicators had recovered beyond the limit.

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Research Article

Effect of weight training for development of speed and agility among volleyball players of Kakatiya University

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ABSTRACT

The goal of this research is to see how Weight training affects the development of Speed and agility among volleyball players of Kakatiya University the subject was chosen at random from a group of boys between the ages of 21 and 23 years old. $n = 15$ Experimental Group I and $n = 15$ Control Group II are included in the study's sample. Weight training exercise were given to experimental group on alternate days i.e. Three session per week and controlled group were given general training for 6 weeks. Pre-test and post-test were conducted on speed on 30 M Run and shuttle run on agility to experimental group and controlled group. This study shows that due to the weight training exercise there is an improvement in experimental group on development of speed and agility among volleyball players of Kakatiya University.

INTRODUCTION

Weight training is a common type of strength training for developing the strength and size of skeletal muscles. It utilizes the force of gravity in the form of weighted bars, dumbbells or weight stacks in order to oppose the force generated by muscle through concentric or eccentric contraction. Weight training uses a variety of specialized equipment to target specific muscle groups and types of movement.

Sports in which weight training is used are: Bodybuilding, weightlifting, powerlifting, strongman, highland games, hammer throw, shot put, discus throw, and javelin throw. Many other sports use strength training as part of their training regimen, notably: American football, baseball, basketball, canoeing, cricket, football, hockey, lacrosse, mixed martial arts, rowing, rugby league, rugby union, track and field, boxing and wrestling.

Volleyball is a team sport in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules.^[1] It has been a part of the official program of the Summer Olympic Games since Tokyo 1964. Beach Volleyball was introduced

to the programmed at the Atlanta 1996. The adapted version of volleyball at the Summer Paralympic Games is sitting volleyball.

Azmil and Kusnanikl^[2] Universitas Negeri Surabaya, Indonesia (2018) study aimed to analyse the effect of speed, agility and quickness training program to increase in speed, agility and acceleration. This study was conducted at 26 soccer players and divided into 2 groups with 13 players each group. Group 1 was given Speed, Agility, and Quikness training program, and Group 2 conventional training program for 8 weeks. This study used a quantitative approach with quasi-experimental method. The design of this study used a matching-only design. Data was collected by testing 30-m sprint (speed), agility t-test (agility), and run 10 m (acceleration) during the pre-test and post-test. Furthermore, the data was analysed using paired sample *t*-test and independent *t*-test. The results showed: that there was a significant effect of speed, agility and quickness training program in improving in speed, agility and acceleration. In summary, it can be concluded that the speed, agility and quickness training program can improve the speed, agility and acceleration of the soccer players.

OBJECTIVE OF THE STUDY

The objective of the study is to find out the effect of Weight Training on the development of Speed and Agility among volleyball players of Kakatiya University.

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Variable	Group	Pre test Mean±SD	Post test Mean±SD	<i>t</i>	<i>P</i> -value
30M run test	Experimental	5.60±0.294	5.30±0.262	4.52	0.000
	Control	5.70±0.377	5.73±0.406		

Significance at 0.05 level

Variable	Group	Pre test Mean±SD	Post test Mean±SD	<i>t</i>	<i>P</i> -value
Shuttle run test	Experimental	11.51±0.394	11.23±0.362	3.58	0.000
	Control	11.64±0.476	11.73±0.508		

Significance at 0.05 level

Hypothesis

It was hypothesized that there would be a significant difference in Weight Training development of Speed and Agility among volleyball players of Kakatiya University.

METHODS

$n = 30$ at the top Volleyball men between the ages of 21 and 23 were chosen at random and divided into two groups: Experimental group I $n = 15$ (Weight Training) and Controlled group II $n = 15$ (General Training). The criteria for selection were based on their achievements at various levels such as state, inter-university, and national levels. Explained the training schedule and training plan with subjects before the session started.

Tools

Speed

Sprint or speed test can be performed over varying distances, depending on the factor of being tested and the relevance to the sports.

30 M Run

The aim of the test is to determine acceleration and speed.

Agility

Agility is the ability move quickly and change direction while maintaining control and balance. Good agility requires combination of speed, acceleration, balance, power and coordination, plus good reflexes.

10 m Shuttle Run

The 10 m Shuttle Run (4×10 M) test measure agility and speed while running between two lines 10 m apart to pickup small blocks.

RESULTS AND DISCUSSION

Mean value and independent sample test of 30M Run test between experimental and control group of volleyball players.

The mean value of experimental group in 30 M run test is 5.60 in pre test and 5.30 in post test there is a improvement in experimental group and control group mean is 5.70 in pretest and 5.73 in post test and not improved due to general training.

Mean value and independent sample test of 10M Shuttle Run Test between Experimental and control group of volleyball players.

The mean value of experimental group in 10 M shuttle run is 11.51 in pretest and 11.23 in posttest there is an improvement in experimental group and control group mean is 0.28 and control group mean is 11.64 in pretest and 11.73 in posttest and decreased due to general training.

CONCLUSIONS

It was concluded that after the 6 weeks of Weight Training, there is improvement in Experiment Group, as it was analyzed in the results mention that the Weight Training has shown excellent effect in the improvement Speed and Agility. The aim of formulating the effect of Weight Training to the betterment and enhance their performance as well as a guideline for volleyball coaches at various level in preparing and designing quality and effective training program.

RECOMMENDATIONS

The following suggestions are made for the benefit of players, coach's academicians, and sports scientists. The researcher suggests the part of the coach to use the above-said development of the Weight Training program for volleyball players. The study helps the physical educationist and coaches for selecting the players.

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Research Article

Construction of physical fitness norms for university women's of Rayalaseema region in Andhra Pradesh

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ABSTRACT

The purpose of the study was to verify experiment, analyze and understand the Construction of Physical fitness Norms for University Women Students of Rayalaseema Region in Andhra Pradesh (Cardiorespiratory endurance). For concluded this study, $n = 360$ University players were selected as subject age about 18–25 years. This research aimed to analyze the construction of physical fitness norms for University Women Students of Rayalaseema Region in Andhra Pradesh. The researcher reviewed the available literature pertaining to the study taking into consideration of the variables, the physical fitness (600-yard run), for construction of norms of the study. Total 360 women college students from different universities in Rayalaseema Region have been tested and AAHPERD youth fitness test (600 mts yard run) was conducted to them. AAHPERD youth fitness test battery has been administered to total of 360 University women students.

Keywords: Cardio respiratory, 600 yard run, Physical fitness

INTRODUCTION

The importance of sports has been recognized at national and international level by all the countries of the globe. Nowadays sports square measure thought-about as a global discipline as a result of it develops international understanding and universal brotherhood. Sports also are one in every of the factors contributory to the event of character. Education and sports ought to kind an integral a part of life long education in I lie overall academic system and their promotion from educational institution age to adulthood and will be treated together of the elemental rights. Sports Education scores as a medium for public lavatory total education, emotional and intellectual development victimization expertise targeted movement. Hence, the promotion of sports is that the ethical and social responsibility of every nation. Sport is one in every of the foremost widespread human activities whether one by professionals or amateurs often or simply sometimes several folks do sport. Besides being smart for the health, its a major economic and social role: it purports social integration and conjures up cultural exchanges.

Due to the extreme development of medication and technology, the athletes became capable of reaching their higher levels of performance. Smart quality gear, close support, and also the facilitate of the trainer isn't continually everything. Athletes having constant performance on trainings square measure determined to win the competitions supported who is capable of mobilizing a lot of motive throughout the performance. whereas antecedent it absolutely was the purgative condition that had the first importance, today and within the future-psyche preparations can have the leading role: over and over its hundredth of a second or tenth points rely upon however the athletes square measure ready mentally, and the way they will cowl the obstacles of the competition.

Kravitz (2010) studied on health connected fitness of boys aged ten to 18 years. The investigation was dole out on 797 male children and youth happiness to geographical region and falling within the age vary of ten to 18 years. Four parts of health connected fitness specifically flexibility body composition muscular strength/endurance and vas endurance were assessed victimization normal techniques. The ends up in general indicate a trend of improvement in cardiometabolic process fitness of the boy's happiness to the study with increase in age. but once comparison was created with prudent fitness gram standards Results indicate poor level of volume of chemical

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element (max) in boys of this study, the results of muscular strength and endurance, a very important health-connected element of fitness indicate variations in its development with relevance totally different body regions in boys of this study from age ten to 18 years. The muscles associated with the higher body region such as pectorals major and striated muscle deltoid etc. area unit determined to develop comparatively higher in their strength endurance ability than the muscles happiness to and leg, abdominal, and hip regions. It had been believed that disproportionate development of muscular strength endurance in boys of the study could also be attributable to their habitual life vogue and a craze for a few chosen muscular strengthening exercises, such as use of dumbbells, and lifting weights. so as to develop their body for a gorgeous physical look. Average percentage body fat of those boys in the slightest degree age level was determined to fall within the health fitness zone. However, the percentage body fat of boys of the study once the age of 14 years and onward exhibit a pointy rise that continues up to 17 years ancient

OBJECTIVES OF THE STUDY

The objective of the study is to analyze and understand the Construction of Physical fitness Norms for University Women Students of the Rayalaseema Region in Andhra Pradesh (cardio repository endurance).

METHODOLOGY

This study was concluded the verify experiment, analyze and understand the Construction of Physical fitness Norms for University Women Students of Rayalaseema Region in Andhra Pradesh (cardiorespiratory endurance). For concluded this study, $n = 360$ University players were selected as subject age about 18–25 years.

Tools

- 600-yard run-walk
- Purpose of the test: To measure the cardiorespiratory endurance [Table 1].

STATISTICAL TECHNIQUE

After collecting the data to compute the Norm, Mean, Standard Deviation and Hull scale were computed.

RESULTS

Since the numerical value of time and the standard of performance go in the inverse proportion, the hull scale value of 3.064 s is deducted from the mean score 190.083 s. Hence, the 600 - yard run - walk performance of the 51st score is

Table 1: Criterion measures

S. No	Test items	Variables	Unit of measurement
1.	600 - Yard Run - Walk	Cardio respiratory endurance	In minutes and seconds

Table 2: The qualitative grading for the constructed norms for the (scores in seconds)

Score	Qualitative grading	Number of subjects in each grade
25 and above	Failing	25
26–35	Below average	110
36–50	Average	186
51–65	Above average	39
66–75	Good	0
75 and above	Outstanding	0

Table 3: Mean, standard deviation, and hull scale values of 600 yards run/walk, the performance of university women students of Rayalaseema region in AP

S. No	Test	Mean	SD	Hull scale
01	600 yards Run/Walk	190.083	51.496	3.604

3.06.48 s. Similarly, for the 49th score hull scale value is added to the mean score resulting in 3:13.69 s. A subject performing 4:40.18 s obtained 25 points on the scale. Like subject who performed below 6:06.68 s is not get any points. The hull scale value is constructed from zero to hundred for 600 - yard run - walk performance test for University Women Students of Rayalaseema Region in Andhra Pradesh. On the basis of the above constructed table the subjects are given qualitative grading as shown below Table 2.

The above Table 3 showing the performance of university players in standing broad jump, the results and test constructed as per the standard norms, Mean (190.083) SD. (51.496) and Hull Scale (3.604).

CONCLUSIONS AND DISCUSSION

This study was conducted to construct norms for Physical fitness for university women in the Rayalaseema region of Andhra Pradesh. The age group of the subjects was 18–25 years. To achieve this purpose totally 360 students were selected. The raw scores were converted into hull scales and thus norm was constructed. One the basis of the hull scale norms in the performance of AAHPERD youth physical fitness test 600-yard run tests for university women students of Rayalaseema Region in Andhra Pradesh the following conclusions were drawn. In s600 yard run, test for women

according to the qualitative grading by the constructed norms it is found out In 600 yards run/walk, test for women according to the qualitative grading by the constructed norms it is found out 25 subjects (6.94 percent) out of 360 subjects have fallen in the failing category, 110 subjects (30.56 percent) are in the below average grade, 186 subjects (51.67 percent) are in the average grade 39 subjects (10.83 percent) are found in the above average and (0 percent) good category and(0 percent) is found in the outstanding category.

RECOMMENDATIONS

- A similar study may be conducted to construct norms for the college women in Andhra Pradesh
- Research study on this problem may be under taken for different age group
- A study of similar nature may be conducted to construct national norms in the entire Athletic event for women
- Physical fitness tests may be constructed periodically at university level so as to estimate the level of physical

fitness of every individual student and to recommend the remedial measures if any

- A similar study may be conducted to construct norms for the performance variables in each major game for women.

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Research Article

Psychological relaxation techniques for athletes

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INTRODUCTION

The connection between mind and body is something that sports professionals have become more conscious of in recent years. A wealth of research suggests the close link between the two. As such, techniques developed for relaxation in sport have become an important part of athletic performance training for athletes of all levels. Relaxation has been defined as a psychological strategy used by sports performers to help manage or reduce stress-related emotions (e.g., anxiety and anger) and physical symptoms (e.g., physical tension and increased heart rate during high pressurized situations. Research has indicated that most successful athletes used relaxation techniques compared to less successful athletes (Gould, Eklund and Jackson, 1993; Orlick and Partington, 1988). Many researches indicated that relaxation techniques benefits athletes by enhancing self-confidence, concentration, performance, reducing anxiety and stress, blood pressure besides muscle tense (Pragman, 1998; Vincent and Yahaya, 2012; Weinberg and Gould, 2011). Using relaxation techniques in daily sport is therefore a particularly useful skill for athletes to develop. It's part of the way one can self-regulate and manage a spectrum of unhelpful emotions. Unhelpful emotions we might commonly associate with competitive sport. The followings are the important psychological relaxation techniques used by the Sport psychologists in recent years to help the athletes for better performance in sport.

MUSCLE-TO-MIND RELAXATION SKILLS AND STRATEGIES

Progressive Muscle Relaxation (PMR)

One of the most popular methods of relaxation is PMR. In using this technique, an athlete tense up a group of muscles so that they are as tight as possible, and holds them in a state of extreme tension for a few seconds (Ampofo-Boateng,

2009). The muscles are then progressively relaxed to their previous conditions. Jacobson (1930) developed the concept of progressive relaxation (PR), another muscle-to-mind approach to relaxation. PR consists of a series of exercises that involve contracting a specific muscle group, holding the contraction for several seconds, then relaxing. The exercise progress from one muscle group to another. The purpose of the contraction is to teach an awareness and sensitivity to what muscular tension feels like. The letting go, or relaxation phase, teaches an awareness of what absence of tension feels like and the acknowledgement that it can voluntarily be induced by passively releasing the tension in a muscle. The initial training programme devised by Jacobson required much more time in training each muscle group than many of the modifications that have been developed over the years.

Breathing Exercises

Breathing properly is not only relaxing; it facilitates performance by increasing the amount of oxygen in the blood. This carries more energy to the muscles and facilitates the removal of waste products. Unfortunately, many individuals have never learned deep, diaphragmatic breathing and those who have often find their breathing patterns disrupted under stress. Athletes who get uptight during a high-pressure performance situation find their breathing is usually affected in one of two ways-they either hold their breath or they breath rapidly and shallowly from the upper chest. Both of these adjustments create even more tension and impairment of performance. A good technique for making athletes aware of what shallow, chest breathing feels like is to have them raise their shoulders way up and notice what happens to their breathing. Some coaches and sport psychologists even "choreograph" specific breathing times into the performance of certain skills such as gymnastic and figure skating routines.

Complete Breath

Proper breathing comes from the diaphragm, the thin muscle that separates the lung and abdominal cavities. During

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inhalation the diaphragm should move down slightly, thus pushing the abdomen out and creating a vacuum in the lungs. This fills up the lungs from the bottom. For practicing a deep, complete breath, have the athletes imagine that the lungs are divided into three levels or parts. Have the athletes concentrate on filling the lower section of the lungs with air, first by pushing the diaphragm down and forcing the abdomen out. Have them continue by filling the middle portion of the lungs by expanding the chest cavity and raising the rib cage and chest. Finally, have the athletes fill the upper portion of the lungs by raising the chest and shoulders slightly. All these stages should be continuous and smooth. The athletes should hold the breath for several seconds, then exhale by pulling the abdomen in (which pulls the diaphragm up) and lowering the shoulders and chest to empty the lungs. Finally, instruct the athletes to pull the abdomen in further to force out the last bit of air from the lungs. They should let go of all muscular action at the end of the exhalation so the abdomen and chest are completely relaxed.

After learning the procedure, the athletes should take at least 30–40 deep breaths each day. Associating deep breathing with events that naturally occur during the day will facilitate practice. Some stress therapists suggest affixing to a person's wristwatch dial a tiny colored paper disc so that each time the person looks at the watch, he/she is reminded to relax by taking a deep breath. Another good time for athletes to practice this breathing exercise is during the time they are waiting for class to begin or when they need momentary relaxation, such as before a free-throw shot, tennis serve, or golf putt.

Sighing with Exhalation

Sighing aids in reducing tension. Instruct the athletes as follows: "Inhale slowly and then hold your breath for 10 s, feeling the tension building in the throat and chest. Exhale through the mouth with a slight sigh as you let go of the tension in the rib cage. Do nothing about inhaling—let that happen naturally. Hold your breath and repeat the sigh with the exhalation as you force the air out of the lungs."

The quietest or calmest time of the breath is between the exhaling and inhalation. Stress that athletes feel the stillness at the moment directly after fully exhaling and sighing. If athletes can feel this quietness, they are learning how to relax. Practice again, but without holding the breath. As athletes exhale fully and completely, they should feel all the tension leaving the body. Be aware of the quiet time during the breath. Whenever athletes feel themselves getting too tense, they should try to recreate this moment of peace and calm by momentarily practicing this exercise.

Rhythmic Breathing

Have the athletes inhale to a count of 4, hold for a count of 4, exhale to a count of 4, and pause for a count of 4 before

repeating the sequence. You can alter the rhythm of their breathing by changing the count.

Ratio

Have the athletes take a deep, full breath and then exhale fully and completely. Have them breathe again, only this time to a count of 4 on the inhalation and a count of 8 on the exhalation. If the athletes run out of breath before reaching 8, suggest that next time they take deeper breath and exhale more slowly. Stress awareness of a full inhalation and exhalation. With more practice and deepened relaxation on the part of the athletes, you may need to change the count to 5:10 or 6:12. This exercise is a very powerful relaxer if done properly.

5-to-1 Count

Instruct the athletes as follows: "Say to yourself and visualize the number 5 as you take a deep, full, slow breath. Exhale fully and completely. Mentally count and visualize the number 4 with your next inhalation. As you begin the exhalation, say to yourself, "I am more relaxed now than I was at number 5." Do not rush the thought. Inhale while mentally counting and visualizing the number 3. With the exhalation, say to yourself, "I am more relaxed now than I was at number 4." Allow yourself to feel the deepening relaxation. Continue until you reach number 1. As you approach number 1, you should feel totally calm and relaxed."

The complete exercise takes one to 2 min. If done properly, it should lead to more relaxation than practicing a single complete breath. This exercise can be used before or during practices and competition, depending on how much time is available and how much relaxation is needed.

Concentration Breathing

Have the athletes concentrate on focusing their attention on their breathing rhythm. Tell them that if their mind wanders to some other thought between inhaling and exhaling to redirect their attention back to their next breath, letting the intruding thought disappear. Instruct them to think of becoming more relaxed with each exhalation. This is a good exercise for athletes to practice when they are having problems with distracting thoughts.

Mind-to-Muscle Relaxation Techniques

The majority of additional relaxation techniques and strategies focus on efferent nerve control, or the stimulation from the brain to the muscles. Among these techniques are meditation, imagery and autogenic training. The techniques should be initially practiced in a comfortable position in a quiet environment. Any of the positions suggested for PR practice can be used.

Meditation

Meditation facilitates concentration by disciplining the mind. Four basic components are common to most types of

meditation: A quiet environment, a comfortable position, a mental device and a passive attitude. A mental device, such as a mantra or fixed gazing at an object, helps to shift the mind from logical externally oriented thought by providing a focus of attention on something that is non-stimulating. A mantra is a non-stimulating, meaningless rhythmic sound of one or two syllables that a person regularly repeats while meditating.

It is critical that athletes not worry about how well they are performing the technique because this disrupts effective meditation. Stress their adopting a “let it happen” attitude. The passive attitude is perhaps the most important element in learning to meditate. Distracting thoughts or mind wandering may occur, but this is to be expected and does not mean that the technique is being performed incorrectly. When these thoughts occur, simply redirect attention to the mental device, focusing on this cue and letting all other thoughts move on through consciousness with a passive attitude, making no attempt attend to them.

The relaxation response developed by Herbert Benson (1975), a physician at Harvard Medical School, is an excellent meditative technique to teach athletes. For a mental device, Benson recommended the word “one.” However, “one” is a very arousing stimulating word for achievement-oriented athletes. A better word might be “calm” or “warm.” The following are directions for meditation based upon a variation of Benson’s relaxation response:

1. Sit quietly in a comfortable position
2. Close your eyes
3. Deeply relax all your muscles, beginning at your feet and progressing up to your face. Keep them relaxed
4. Breathe through your nose. Concentrate on your breathing. As you breathe out say the word “calm” or “warm” silently to yourself. For example, breathe IN...OUT. “Calm”; IN..... OUT, “calm”; and so forth. Breathe easily and naturally
5. Continue for 10 to 20 min. You may open your eyes to check the time, but do not use an alarm. When you finish, sit quietly for several minutes, at first with your closed and later with your eyes open. Do not stand up for a few minutes
6. Do not worry about whether you are successful in achieving a deep level of relaxation. Practice the technique once or twice daily, but not within 2 h after any meal, since the digestive process seems to interfere with the elicitation of the relaxation response.

Imagery

Imagery, known as mental rehearsal, mental visualization or mental practice, helps athletes to reduce anxiety and improve performance by activating the muscles (Cox, Qiu and Liu, 1993). Imagery in its simplest form, involves an athlete imagining a scene, place or even that he or she sees as peaceful,

restful, beautiful and bringing happiness. According to (Feltz and Lirgg, 2007) imagery is the most common technique to improve performance among athletes in competitive situation. The senses for imagery may include, but not limited to: 1. Sounds of running water and rivers. 2. That resemble green space like natural or semi natural habitats, rivers, canals, parks, gardens, street trees, parks, golf courses, sports fields, mountain view, sounds of running water, grass, flowers, the scene of cool mountain water, the breath of fresh air and so on.

Autogenic Training

Autogenic training was developed in Germany in the early 1930 s by Johannes Schultz and has been used extensively with European athletes. The training consists of a series of exercises designed to produce two physical sensations, warmth and heaviness. Basically, it is a technique of autohypnosis or self-hypnosis. Attention is focused on the sensations one is trying to produce. As in meditation, it is important to let the feeling happen in a very passive manner. There are six stages in the training. Have the athletes learn each stage before progressing to the next stage. Some people suggest that trainees spend 2 weeks at each stage; however, the progression can be modified to suit the athletes’ learning rate as well as the training program and length of season of the sport. It usually takes several months of regular practice of 10–40 min, one to 6 times per day to become proficient enough to experience heaviness and warmth in the limbs and to produce the sensation of a relaxed, calm heartbeat and respiratory rate accompanied by warmth in the abdomen and coolness in the forehead. Once athletes have reached that level of training and can attain a relaxed state, they can use imagery to increase the depth of relaxation.

The first autogenic stage involves focusing attention in a passive manner on the dominant arm while silently saying, “My right/left arm is heavy,” three to 5 times during 1 min. Have the athletes flex the arms and move the body about; then repeat the sequence with the non-dominant arm, then with the dominant leg. A sense of heaviness should take over the body. If the mind wanders, emphasize passively redirecting attention back to the task at hand. Some athletes may be able to produce a sense of heaviness immediately; other may take one or 2 weeks of three or more times of practice daily to accomplish the sensation. Instructions should follow the same general format for the warmth stage, which may take longer to achieve.

If athletes are having difficulty feeling the appropriate sensation, sometimes learning can be facilitated by having them physically experience the sensation. For example, if trying to achieve heaviness in the right arm, put a pillow over the arm and, if need be, a book or two on top of the pillow. For the warmth sensation, have the athletes immerse their hands in hot water or put a heating pad or hot water bottle over the hands while they initially do the exercise.

Regulation of the heartbeat is the third stage after mastering the heaviness and warmth exercises. Repeat the instruction “My heartbeat is calm and regular” three to 5 times during 1 min. Take a brief break from the focus of concentration and then repeat the instruction again three to 5 times during 1 min. Do a total of four repeats for the exercise. Follow the same procedures for the fourth, fifth and sixth stages.

It may take anywhere from two months to a year to master these skills. As one becomes more proficient, the six stages can be combined by going through the above directions once, completing the entire series in a matter of minutes. At this stage, the appropriate phrases, respectively, for Stage 1 and Stage 2 are “my arms and legs are heavy” and “My arms and legs are warm.” Regular daily practice for several minutes three or 4 times a day is recommended during training.

CONCLUSION

Just before any competition sit back and take a breath. The simple acts of inhaling, exhaling and relaxing for just a few moments can have a significant impact on the sports performance. This ability to relax and focus on the skill to be executed is not something that can be implemented instantaneously but rather it is developed over time and with practice. Practicing “relaxing” may sound easy enough but in reality it is something that requires dedication, time and effort. One of the most popular techniques that anyone can use is PMR. This technique involves tensing and relaxing muscle groups for 20 min a day, in a quiet location where you can “let go” and clear your mind of worry. It is a very accessible method. PMR has been shown to have hugely significant long-term effects in sport, particularly with helping to reduce general anxiety and stress, while also helping to increase concentration. Studies showed that PMR led to improved performance. Many athletes struggle with “over arousal,” where they are overly anxious and stressed or even over-motivated, before matches and this can have a debilitating affect on performance. Concentrated breathing techniques can

help overcome these negative pre-match effects by decreasing arousal to a level. Breathing techniques are arguably most relevant in sports involving a “closed skill,” where there are fewer “outside distractions” during a match and there is the time available to take a moment to relax. Even in team sports, there will be times when deep breathing techniques can give an athlete a vital few seconds to ensure they are in the right state of mind to execute a skill effectively. We all know that relaxation is a psychological strategy used by sports performers to help manage or reduce stress-related emotions like anxiety and anger and physical symptoms of physical tension and increased heart rate during high pressurized situations. Relaxation is a vital part of all sports persons of every level and stages of their sports career during and after training, of every day, before the competition, during the competition and after the competition.

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Research Article

Difference between inter-college female basketball players and handball players in motor fitness and health related parameters

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ABSTRACT

Aims to analysis the difference among inter-college female basketball and handball players in there motor fitness (i.e., speed and flexibility) and health related parameter such as breath hold time. For this study, 60 inter-college female subjects were selected as subjects from who were participate inter-college tournaments such as basketball and handball, from affiliated colleges of Osmania University, Hyderabad, TS. The study would be confined to inter-college female players among age from 18 to 22 years. For the study, the following criterion variables are selected, that is, speed, flexibility, and breath holding time. Data were collected from each subject. The data were statistically analyzed using the independent "t" ratio test. There is no substantial change in speed, flexibility, and breath holding time, according to the findings. It is concluded that there is insignificant difference found in all the variables of inter-college female basketball and handball players of Osmania University, Hyderabad.

Keywords: Motor fitness, Health related variable, Basketball, Handball, Independent t-ratio

INTRODUCTION

Motor fitness and health related components are critical factor in lieu of performers to attain elite success in basketball and handball. Speed and agility are important virtues to move quicker and adjust the course of the game scenario, which is most commonly needed in basketball and handball. Balance helps stabilize the body maintains the balance while leaping and taking rebounds in either the offense or the resistance. Flexibility is essential for the execution of coordinated movements and serves as the foundation for the development of many other attributes such as stamina and endurance. Excess weight or obesity will hinder a player's ability to move quickly and propel his or her body into the air at any point during the game (Tanwar, 2013). Fitness is vital at all stages of the game, but particularly so for seasoned players. This is

advantageous for beginners who can enhance their efficiency and satisfaction by maintaining a good level of fitness. Basketball is a high-intensity sport that necessitates a high level of motor skills. Explosive ability, strength stamina, endurance, speed, and various coordination skills are all essential motor characteristics (Sudha, 2015). Basketball is a game that requires a lot of movement, so players must be physically fit to play it (Ramesh, 2015).

METHODS

Selection of Subjects

For this study, 60 inter-college female subjects were selected as subjects from who were participate inter-college tournaments such as basketball and handball, from affiliated colleges of Osmania University, Hyderabad, TS. The study would be confined to inter-college female players, their age ranges from 18 to 22 years.

Variables

For the analysis, the below variables were chosen.

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DEPENDENT VARIABLES

Motor Fitness Variables

1. Speed
2. Flexibility.

Health Related Variable

1. Breath holding time.

Tools and Techniques

- a. Speed was measured by 30 m dash test in seconds.
- b. Flexibility was measured by sit and reach test in centimeters.
- c. Breath holding time was measured by Manual Nostril Clip Method in seconds.

Statistical Procedure

To assess if there was a meaningful difference between the basketball and handball classes, the independent “t” ratio was used, with the statistical significance criterion set at 0.05 level of confidence ($P = 0.05$).

FINDINGS AND DISCUSSION

Results on Speed

The data obtained on speed as a result of basketball and handball groups, Table 1 displays the effects of the “t” ratio study.

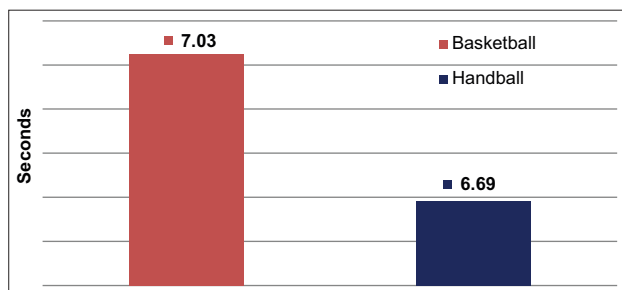


Figure 1: A bar graph depicting the mean difference in speed between intercollegiate men's basketball and handball players

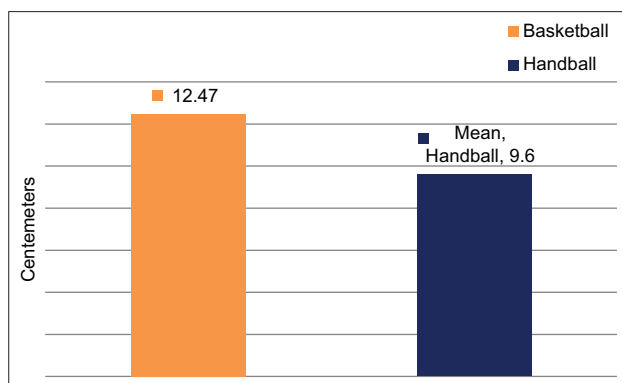


Figure 2: A bar graph depicting the mean difference in flexibility between intercollegiate men's basketball and handball players

“Table 1 presents the mean \pm SD speed of inter-collegiate female basketball players was 7.03 ± 1.48 and handball players was 6.69 ± 0.97 . The obtained “t” ratio 0.73 was found to be lesser than the required table value of 2.05 at 0.05 level of confidence for 28° of freedom, so the results indicate that there was no significant difference on speed between the inter-collegiate female basketball and handball players.”

Results on Flexibility

The data obtained on flexibility as a result of basketball and handball groups were tested by “t” ratio is mention in Table 2.

“Table 2 presents mean \pm SD, flexibility of inter-collegiate female basketball players was 12.47 ± 4.84 and handball players was 9.60 ± 3.62 , the obtained “t” ratio 1.84 was found to be lesser than the required table value of 2.05 at 0.05 level of confidence for 28° of freedom so this indicates that there was no significant difference on flexibility between the inter-collegiate female basketball and handball players.”

Results on Breath Holding Time

The data obtained on breath holding time as a result of basketball and handball groups were analyzed by “t” test is presented in below.

“Table 3 presents the mean \pm SD of breath holding time for inter-collegiate female basketball players was 25.92 ± 5.48 and

Table 1: Calculation of the “t” ratio for female inter-collegiate basketball and handball players

	Group	n	Mean	SD	σ DM	DM	t-ratio
Speed	Basketball	15	7.03	1.48	0.46	0.33	0.73
	Handball	15	6.69	0.97			

Table 2: Calculation of the “t” ratio for female inter-collegiate basketball and handball players

	Group	n	Mean	SD	σ DM	DM	t-ratio
Flexibility	Basketball	15	12.47	4.84	1.56	2.87	1.84
	Handball	15	9.60	3.62			

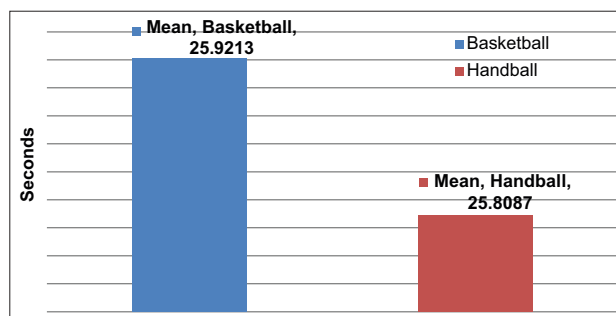


Figure 3: The bar graph depicts the mean difference in breath holding time between intercollegiate men's basketball and handball players

Table 3: Calculation of the “t” ratio for female inter-collegiate basketball and handball players

	Group	n	Mean	SD	σ DM	DM	t-ratio
Breath holding time	Basketball	15	25.92	5.48	1.95	0.11	0.06
	Handball	15	25.81	5.18			

handball players was 25.81 ± 5.18 , the obtained “t” ratio 0.06 was found to be lesser than the required table value of 2.05 at 0.05 level of confidence for 28° of freedom, so this study indicates that there was no significant difference on breath holding time between the inter-collegiate female basketball and handball players.”

CONCLUSION

The first null hypothesis was accepted. There are no significant differences of speed between inter-college women basketball players and handball players of Osmania University, Hyderabad ($t = 0.731$, $df = 28$, $P < 0.05$). It means that there was an insignificance difference found on speed between the both groups, but when comparative to the mean values of both groups the marginal changes were found. Hence, it was concluded that the handball group was slightly better than the basketball group.

The second null hypothesis was accepted. There are no significant differences of flexibility between inter-college women basketball players and handball players of Osmania University, Hyderabad ($t = 1.837$, $df = 28$, $P < 0.05$). It means that there was an insignificance difference found on flexibility

between the both groups, but when comparative to the mean values of both groups the marginal changes were found. Hence, it was concluded that the basketball group was slightly better than the handball group.

The third null hypothesis was accepted. There are no significant differences of breath holding time between inter-ollege women basketball players and handball players of Osmania University, Hyderabad ($t = 0.058$, $df = 28$, $P < 0.05$). It means that there was an insignificance difference found on breath holding time between the both groups, but when comparative to the mean values of both groups the marginal changes were found. Hence, it was concluded that the basketball group was slightly better than the handball group.

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Research Article

Role of physical activities for improvement of physical fitness in athletes of tag of war in Srinagar, Kashmir

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ABSTRACT

The paper used routine methods in the field of physical education and sports to identify six assessment tests and 14 physical activities aiming to enhance level of physical fitness for tug of war athletes in Srinagar city. After the experiment, the results indicated that the 14 physical activities have positive impact on the participants' fitness level.

Keywords: Physical exercises, Strength, Tug of war, Srinagar city

INTRODUCTION

Tug of war is considered one of the most common and ancient folk sports (Li, 2015). It is a team sport that pits two teams against each other by motion of two legs of each player in a straight line and which can be played on a flat surface, having an indoor competition type on wooden floors or on neoprene mats or outdoor on dirt or grass courts. In an international tug of war, the upper body from the hips, back, arms, and chest is in a static state to fix the rope and the legs are always in a state of motion, the posture falling backwards with an angle of 45° and the state of motion. Thus, the athletes should be required to maintain balance and good sense of space.

Especially, there are high requirements for cardiovascular and respiratory, good aerobic and anaerobic energy exchange capacity, strength of hands to hold the fixed rope, the soles of feet should be tightly close to the floor, and the strength of two legs is used.

In international tug of war, athletes have to expend a lot of energy, so they only achieve best results when they store enough energy needed for the tournament.

The tournament is a confrontation competition that is for each weight class by gender and ends in the same session or

in 1 day. Thus, when competing in many games with many opponents, accompanied by exertion (professional endurance), the amount of energy of athletes is not the same and depending on the match, on the opponent that the process of providing energy can be anaerobic without producing lactic acid and an aerobic process. The above condition shows that fitness is an important factor and determines the performance of athletes in tug of war. To prepare good physical fitness for athletes, it is necessary to have appropriate physical activities that are not only fit with the physiological and psychological characteristics of athletes but also suitable for the real conditions of facilities.

RESEARCH DESIGN AND METHOD

Objectives of the Study

The study is aimed at finding out the suitable physical exercises for the female athletes who were members of a tug of war team in Srinagar city. The study results will be used as the training references enhancing best performance of tug of war team.

Instruments and Participants

Research instruments used in this study were reference materials, questionnaire, physical fitness testing, experimental, and statistics analysis.

The participants were ten female athletes aged ranging from 16 to 18 years old who played for tug of war team in Srinagar city, Kashmir, and 14 experts and coaches.

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RESULTS AND DISCUSSION

Selecting Some Physical Development Exercises for Female Athletes of Tug of War Team District 1, Srinagar

The selection of exercises is proceeded in two steps as follows. Step 1: Synthesizing physical development exercises in tug of war from various resources. However, tug of war is a relatively new sport so the documents about tug-of-war are very limited, especially materials on physical development exercises. Therefore, we proceed as below:

Piloting the questionnaire with one expert and three coaches who have experience in training tugging athletes in Srinagar city on the use of physical development exercises in tug of war.

Based on the conditions of facilities, equipment for the study, characteristics of tug of war, physiological and physical characteristics of the research subjects, we designed 14 physical development exercises.

Step 2: Delivering the questionnaire to 14 experts and coaches twice. The questionnaire was designed in the format of two Likert scales which were "Agree" and "Disagree." Chi-square test (χ^2) of the 2 times of interview is presented in Table 1.

The results in Table 2 show that for all the tests with χ^2 calculated value is less than χ^2 from the table ($=3.84$), $\text{sig}>0.05$, thus there is consistency between the 2 times of interview. From the results in Table 2, we decided to select 14 exercises above as the number of agreed votes was over 75% in both times.

Evaluate the Effectiveness of the Physical Development Exercises for the Female Athletes of Tug of War Team

Identify fitness tests for female athletes of the tug of war team

The process was carried out in three steps:

Step 1: Synthesizing of tests to assess the physical fitness level of the athletes from different authors. Due to the late introduction of international tug-of-war sport to Kashmir, there are few studies been found in the field. To select the tests, we have reviewed some previous researches. Furthermore, based on the features of tug of war, facilities for the research; we decided to choose seven tests for evaluation physical fitness.

Step 2: Consulting with 14 experts and coaches through a questionnaire 2 times. The questionnaire was designed in the format of "Agree" and "Disagree." The results of Chi-square test (χ^2) of the 2 times of interview are presented in Table 2.

The results in Table 3 show that the tests χ^2 calculated value is less than χ^2 from the table ($=3.84$), $\text{sig}>0.05$, thus there is

consistency between the 2 times of interview. From the results in Table 3, we decided to choose those tests with 75 % of the experts' agreement. Six tests were selected including: Right-handed force (kg), left-handed force (kg), push-ups in 1 min (times), step up stairs in 1 min (times), duck walking 30 m (s), duck walking 30 m (s).

Step 3: Check the reliability of the tests.

To determine the reliability of the tests, the athlete participants were tested 2 times, the time between the two intervals was 5 days, the test conditions between the 2 times were the same. Then, the correlation coefficient (r) of the content of the two tests will be calculated and the test results are presented in Table 3.

Physical fitness is an important determinant of athletes' performance. Due to the actual requirements of the competition, players who want to attack defend, and counter-attack must master a variety of techniques, so they must have a solid level of physical fitness. A tug of war athlete must be "as fast as a short distance runner and as strong as a weightlifter, as enduring as a long distance runner, as flexible as an acrobat". It means that tug of war athletes must move quickly, have good physical fitness and flexibility to win. Therefore, the above tests are very suitable for assessing the physical fitness of tug-of-war athletes.

Evaluation of the Effectiveness of Physical Development Exercises for Female Athletes of the Tug of War Team

Building the experimental plan

We developed the procedure to conduct the experimental training with the selected exercises. The ten athletes of tug of war received 3-month training with three sessions a week and each session lasted 2 hours. To assess the effectiveness of these exercises, the tests selected above were used. The results of pre-training and post-training were compared and presented in Table 3.

The data in Table 4 show that after the experimental training, the physical fitness levels of all female athletes of the tug of war team increased and the figures were statistically significant different before the experiment and after the experiment ($\text{sig} < 0.05$). The results indicated that the fitness level of these players gained some improvement after the treatment with $W = 5.81\%$. Among the selected tests, *push-ups* had the highest improvement level with $W = 8.20\%$ meanwhile the test duck walking gained the lowest score of development with $W = 3.56\%$.

The results of specific tests after the experimental training are presented in Figure 1.

In short, the results show that the 12 physical exercises have positive impact on the physical development of the athlete

Table 1: Results of the questionnaire

Exercises		Interview result				χ^2	Sig.
		1 st time (n=14)		2 nd time (n=14)			
		Agree	%	Agree	%		
1	Jump forward and back 30 m each time	11	78.57	11	78.57	0.00	1.00
2	Walk as duck forward and back 30 m each time	11	78.57	12	85.71	1.74	0.19
3	Face to face squat in a minute	12	85.71	12	85.71	0.00	1.00
4	Run upstairs fast to the 1 st floor and run down slowly continuously within 10 min	11	78.57	11	78.57	0.00	1.00
5	Jump the stairs with 2 feet, jump continuously to the top then walk down. Perform continuously within 10 min.	12	85.71	12	85.71	0.00	1.00
6	Jump and switch the legs continuously on the 40 cm step in 1 min, do it twice	13	92.86	12	85.71	2.67	0.10
7	Stand in Annin Sogi position and lower the body weight so that the knees are slightly perpendicular, stand for 1 min. Do it 2 times	13	92.86	13	92.86	0.00	1.00
8	Hang your hand on the crossbar or on the rope, 3 times, 30 s each time	12	85.71	12	85.71	0.00	1.00
9	Push the wheelbarrow in pairs of the same body weight, push 30 m, 2 times	13	92.86	13	92.86	0.00	1.00
10	Take turns to do push-ups in a row. The first person does push-ups and the rest of the team do push-up hold, do so to the end of the row, each person does 15 times.	13	92.86	13	92.86	0.00	1.00
11	Practice running forward and back after the whistle in a distance of 30 m for 30 s. Proceed 3 times	12	85.71	12	85.71	0.00	1.00
12	Running in variable speed in a football field according to the signal of whistle (5 s for a horn signal). The distance to run is perimeter of the football field, the starting point is to run at a fast speed, after hearing the whistle will slow down, then hear the whistle will run faster, repeat the same with three rounds of the football field which is 400 m peripheral.	11	78.57	12	85.71	1.74	0.19
13	Pulling a wheel of truck in 10 m (carrying out 2 times)	12	85.71	12	85.71	0.00	1.00
14	Continuously turning a wheel of truck in 10 m (carrying out 2 times)	12	85.71	12	85.71	0.00	1.00

Table 2: The results of questionnaire consulting experts and coaches about the selection of tests

Tests		Interview result				χ^2	Sig.
		1 st time (n=14)		2 nd time (n=14)			
		Agree	%	Agree	%		
1	Right-handed force (kg)	11	78.57	11	78.57	0.00	1.00
2	Left-handed force (kg)	11	78.57	12	85.71	1.74	0.19
3	Push-ups in 1 min (times)	12	85.71	12	85.71	0.00	1.00
4	Step up stairs in 1 min (times)	11	78.57	11	78.57	0.00	1.00
5	Leapfrogging 30 m (s)	12	85.71	12	85.71	0.00	1.00
6	Duck walking 30 m (s)	13	92.86	12	85.71	2.67	0.10
7	Single rope skipping for 2 min (times)	10	71.43	10	71.43	0.00	1.00

Table 3: Reliability of physical fitness assessment tests for female athletes of tug of war team

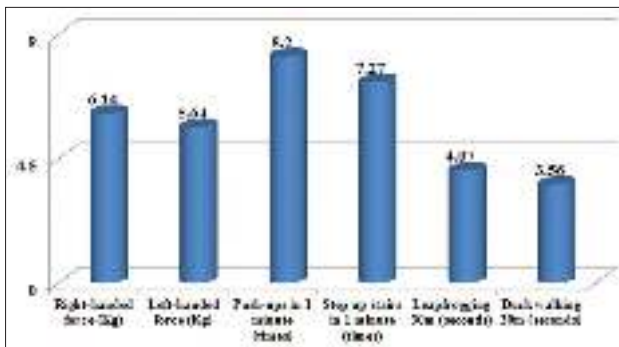
No	Tests	1 st time $\bar{x} \pm S$	2 nd time $\bar{x} \pm S$	r	Sig.
1	Right-handed force (kg)	31.10±6.14	30.90±5.90	0.99	0.00
2	Left-handed force (kg)	25.40±4.81	25.90±4.58	0.95	0.00
3	Push-ups in 1 min (times)	25.80±3.52	26.10±3.07	0.91	0.00
4	Step up stairs in 1 min (times)	118.40±14.96	118.80±11.86	0.96	0.00
5	Leapfrogging 30 m (s)	18.86±1.78	18.88±1.80	0.96	0.00
6	Duck walking 30 m (s)	26.66±1.93	26.42±1.81	0.96	0.00

The results from Table 3 revealed that the six tests were reliable ($0.91 \leq r \leq 0.99$ and $\text{Sig} < 0.05$)

Table 4: The comparison of assessment tests before and after the experimental training

No	Tests	Before the experiment	After the experiment			Sig
		$\bar{x} \pm S$	$\bar{x} \pm S$	\bar{w}	t	
1	Right-handed force (kg)	31.10±6.14	33.60±6.47	6.14	3.77	0.00
2	Left-handed force (kg)	25.40±4.81	27.60±4.74	5.64	4.12	0.00
3	Push-ups in 1 min (times)	25.80±3.52	27.90±2.81	8.20	3.71	0.00
4	Step up stairs in 1 min (times)	118.40±14.96	126.90±11.50	7.27	4.41	0.00
5	Leapfrogging 30 m (s)	18.86±1.78	17.93±1.63	4.07	5.29	0.00
6	Duck walking 30 m (s)	26.66±1.93	25.73±1.95	3.56	4.31	0.00

$\bar{w} = 5.81$

**Figure 1:** Results of specific tests after experimental training

subjects and they could be employed for training these players of tug of war.

CONCLUSION

The study figured out 14 selected physical exercises employed for training the physical fitness for the female athletes of tug of war. In addition, the study also decided six tests used to assess the physical fitness for these subjects.

The results after the treatment revealed that the 14 physical exercises had positive effect on the physical fitness level of the tug of war athletes of a team in Srinagar city. The mean development level is found $W = 5.81\%$ in which push-ups

gained the highest level with $W = 8.20\%$ meanwhile the test duck walking was recorded the lowest score of development with $W = 3.56\%$.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interests for this study.

ABOUT THE AUTHORS

Kawsar ul Islam is Phd Scholar of Physical Education and Sports. His research interests include physical education, teachers' beliefs, and PE curriculum planning.

Mr. Bilal Mudsir, Lecturer Physical Education. His research interests are mainly in physical education and teacher development.

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Research Article

Diabetes mellitus and health-care strategy assessment

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ABSTRACT

Peripheral neuropathy with diabetes occurs in a surprising half of diabetics and is one of the main risk factors contributing to the formation of foot ulcers and their possible removal. There are different types of polyneuropathy that regularly occurs along with autonomic neuropathy. Hyperglycemia is less common in this direction in individuals with long-term physical control and dyslipidemia, prolonged aging, and hereditary neuropathy.

Keywords: Diabetics, Peripheral neuropathy, Aging

INTRODUCTION

The diabetes worsening board plays an important role in reducing the patient experience.

A large number of people of all ages around the world live and endure varying degrees of pain caused by diabetic neuropathy and its complications at different self-help systems. Another basic point is to wear sores on the feet. Similarly, we remember the general importance of diabetic neuropathy, its concentration in different areas, its impact on the nerves, and the extent to which it causes suffering that will ultimately injure the patient if not monitored closely. Similarly, various techniques are mentioned to control and reduce agony despite suffering leadership is a very broad topic on which the overall strategy of the board is based. There is talk of educating patients that can lead a diabetic to blow it up and change it according to a certain lifestyle. At the heart of this project is the distribution of a book that teaches people in general to understand ways to limit the horrors caused by diabetes and its complications, and to think for themselves.

The conclusion depends on the clinical, combined with a combination of historical findings and assessment. Another possible result of the demonstration that should be taken into account is, for example, obtained conditions.

LITERATURE REVIEW AND DISCUSSION

Patients with distal symmetrical poly neuropathy are primarily sensory signs of motor side effects that begin as mild, complex, and nocturnal. Indications can vary widely and include pain, temperature, contact, vibration, and loss of proprioception. Furthermore, marks usually appear on the toes and gradually develop professionally into “sock movements” that cover the feet and legs. However, fingers and toes can occur, usually in people with subsequent diabetic neuropathy. Machine side effects, such as malfunctions, defects, and weakness, usually occur gradually later in the course of infection. As per the report of the World Health Organization (WHO), the quantity of diabetic patients in 2000 came to 171 million and was anticipated to increment 380 million by 2025. Along these lines at now in many nations, diabetes is turning out to be as a pandemic issue. There is evidence of high exposure to infection in both humans and health-care providers. Addressing issues that require well-coordinated action between the social protection framework and individuals; create national and global methods and communicate successfully with legal partners. With this method, it is important for the patient and his family to ensure satisfactory and successful welfare management. The increase in nature presented in a health clinic can lead to changes in the social status of the client and the patient. Epic medications can contribute to the aging of diabetic patients and reduce temporary diseases such as eye, kidney foot, cardiovascular disease, and diabetes inclusion, as well as cause significant economic weight gain. Complicated

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diabetes includes various foot problems, such as ulcers and normal problems, and shows a pattern that has developed in the past decade. For the diabetic foot, the WHO characterizes the diabetic foot with neurologist problems, the role of deep blood vessels, or without confusion in metabolic diabetes, and prone to contamination, contraception, or deep tissue injury. Several studies have shown that 15% of diabetics have diabetes outside of life. Diabetic foot ulcers are the most common cause of hospitalization in diabetics. Again, these ulcers can cause corruption, necrosis, participation, and decline if critical care is not taken into account. This browser deletes deleting points and hospital recovery for the longest time, and requires home care and social assistance. Overall, the elimination rate of elimination was 10–30 times slower in diabetics than in non-diabetics. Studies have shown that one leg is regularly cutoff due to diabetes on the planet. During the first 2 years after inspiration, the risk of recurrence is 50%, and 3 years after being inspired by experts in the underworld, there is half the chance that the mother will die. The incidence of diabetes in Iran was estimated at 3% in 2001.

It should be noted that the care and treatment of diabetic foot are expensive worldwide. In proven countries, more than 5% of diabetics have a foot ulcer, and 20% of all services provided to people are used to treat diabetic feet in those countries. However, treating a diabetic foot ulcer costs between \$ 7,000 and \$ 10,000, and when there are confusion and the need for removal, the cost increases by \$ 65,000. However, in developing countries, diabetic foot and its confusion are more common, but in addition, as many as 40% of medical services are sometimes like that. Moreover, the weight of this curse was enormous. This study led to an estimated severity of diabetes in Iran in 2001. The severity of diabetic foot is estimated at 5848 and includes the severity of neuropathic diabetes up to 40,000 feet were found. It should be noted that the present severity of biceps-related diabetic neuropathy is the severity of diabetic retinopathy or nephropathy.

The improvement of diabetic foot ulcers results from a few variables. These components can build the danger of foot ulcer and cause separation in the skin or debilitation in the injury mending. Peripheral neuropathy can cause extreme weight on certain purposes of the feet and thus, ischemia can expand the vulnerability to ulceration by impedance in peripheral vascular. Moreover, different factors, for example, poor vision, constrained joint development, lacking foot inclusion, and shoes can be susceptible to ulceration in diabetics. The most significant point is that 85% of diabetic foot removals are preventable with suitable consideration and instruction. Perfect administration for avoidance and treatment of diabetic foot is: Normal impression of foot, decide in danger foot, instruction to patient and well-being staff, proper foot inclusion, and early treatment of foot issues.

As per the convention prescribed by the American Diabetes Association (ADA), one of the preventive strategies in diabetes care is multidisciplinary group approach that its favorable circumstances are appeared in a few investigations. The multidisciplinary group can lessens removal rates, forestall diabetes' inconveniences, and spare expenses as 1,824 U.S. \$ in the standard treatment gathering and 1,127 U.S. \$ in intercession bunch. The effect of study was appeared by multidisciplinary group approach the 2-year rate of diabetic foot ulcers was 30% and 58%, separately in high hazard patients and in bunch under treatment with standard treatment. The individuals from group for diabetic foot care for the most part comprises of general professional, nurture, instructor, orthotic, and podiatrists and a few advisors; vascular specialist, contamination sickness master, dermatologist, endocrinologist, dietitian, and orthopedic and furthermore it is essential the entrance to focuses and home consideration administrations. Albeit all colleagues have impact on decrease the frequency of foot ulcer and removal, be that as it may, the job of medical attendant and podiatrists is fundamental.

Objectives of Nursing Mediation in Diabetic

Improving patient care and well-being is one of the most important issues for health-care professionals. According to the World Health Organization, health professionals are one of the largest fitness groups on the planet participating in various stages of fitness.

Clearly, there are several explanations for the closeness of health professionals in the human services group, but the reorganization primarily includes four main goals for advancing in well-being, disease prevention, patient care, and patient consistency. To achieve this goal, participants can take different positions. Seven basic locations are available to participants, including: (1) Giving social insurance, (2) relationship cares, (3) teachers, (4) experts, (5) pioneers, (6) experts, and (7) patient privilege support.

Participants combine science and craft to provide healthcare and strive to meet the patient's physical, excited, mental, social, and other needs. Because patient care is the primary responsibility of health-care professionals, the goal is to perform important diabetes-controlled tasks in verified countries, and diabetes care is divided into several classifications, including physicians, physicians, diabetics, nutrition, education, and all have clear responsibilities. For example, health professionals focus on health promotion and disease prevention, including continuing education and counseling. It is clear that due to the increasing incidence of diabetes and its complications, there is a great need for training of nurses in this area. The diabetic feet are so important that they are considered one of the main goals of the Healthy People 2010 program to reduce sores and spread on the feet in diabetics. Therefore, the goal is to reduce gain by 55% and increase diabetic foot examinations by nearly 75%.

CONCLUSION

Diabetics must be properly trained, especially the importance of closely monitoring blood sugar levels. It is very important that people with diabetes always achieve normal blood sugar levels. It is also beneficial for patients with neuropathy, and is significantly lowered by normal blood sugar. Sometimes pain medications do not help, but careful control of sugar levels usually reduces what the patient can achieve by controlling, which reduces pain. (Sumner *et al.*, 2016, 29) It is also important to be as active as possible, even if patients with severe sensory impairment or autonomic function should not move if the weather is very hot or cold. There may be frostbite if it is very cold or too hot. These patients are advised to consult a physician before the exercise program. It is very important for the patient to always eat a controlled and nutritious diet to prevent secondary complications of diabetes. This can be achieved with your doctor if you plan to lower your blood sugar and reduce your person's variability.

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Research Article

The role of positive psychology in creating a positive environment in an organization

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ABSTRACT

This paper focuses on meeting the different needs of a person who plays an important role in creating a positive environment in an organization. Maslow's hierarchy of needs gives managers ideas for creating a positive environment. The objectives of this study are to: (i) Analyze the relationship between employee satisfaction and a positive organizational environment. (ii) To explore the characteristics of leader that helps in creating positive environment in an organization. Data regarding positive environment and need of employees were collected from eight college principals and six school principals, and 26 teachers of schools. We collect information through telephone conversations and survey technology. Positive leadership has been found to create a healthy environment by meeting the needs of all employees. If superiors can provide enough attention to meet the needs of employees, a healthy environment will automatically be created. Positive aspects that are in management positions: Appreciating the good work of employees or being grateful, showing responsibility, and creating cohesion among valued employees can make employees focus on the group. Such actions can motivate an employee to extend their self-esteem not only to those who value them mutually, but also to the group or the entire team to which they belong. A positive leader consults with his subordinates, respects his skills and values.

Keywords: Maslow's hierarchy of needs, Positive psychology, Positive leadership

INTRODUCTION

Positive psychology has been increasing the attention of scientists and practitioners since the beginning of its movement at the beginning of the new millennium. Positive psychology quickly spreads to different fields and professions. Over the past decade, the field of psychology has become a science that focuses almost exclusively on treatment, developing disease models that focus on pathology and neglect the notion of fulfilled people and successful communities (Seligman, 2001). However, positive psychology emphasizes the idea that psychology is simply the study of pathology, weakness, and injury; it is also a study of power and virtue. It is not just a branch of medicine concerned with illness or health or fixing what is broken; it is about nurturing what is best in work, education, insight, love, growth, and play (Seligman and Csikszentmihalyi, 2000).

This field intends to complement, not replace, and traditional psychology. He does not see the importance of studying how

things went wrong, but he emphasizes the importance of using the scientific method to discover how things went wrong. Positive psychology can be applied in any area of a person, such as home, work, hospital, administration, or administration.

MEANING OF POSITIVE PSYCHOLOGY

Positive psychology is the scientific study of the strengths and abilities that enable individuals and communities to succeed. This area is based on the belief that people want to live meaningful and fulfilled lives, develop the best in themselves, and improve experiences of love, work, play, parenting, and leadership. Positive psychology has three main concerns: Positive emotions, positive individual traits, and positive institutions. Understanding positive emotions involve studying satisfaction with the past, happiness in the present, and hope for the future. Understanding positive individual qualities include exploring gifts and strengths such as the ability to love and work, courage, empathy, endurance, creativity, curiosity, honesty, self-awareness, moderation, self-control, and wisdom. Understanding positive institutions include exploring forces that promote a better community, such as fairness, responsibility,

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kindness, parenting, care, work ethic, leadership, teamwork, purpose, and tolerance. Positive psychology is a branch of positive psychology led by Martin Seligman and Mihaly Csikszentmihaly in 1998: “Positive psychologists seek to discover and nurture genius and talent and make everyday life more satisfying, except for the treatment of mental illness.” In the new theory of well-being, human wealth is focused on the five pillars that characterize the mnemonic PERM: Positive emotions, commitment, relationships, meaning, and achievement. These elements are the basis of human well-being.

PROBLEM

Study of the factors that contribute in creation of positive environment in an organization.

SIGNIFICANCE OF THE PROBLEM

Positive management believes that employees in the organizational environment should be satisfied. Positive leadership is based on the field of positive psychology, which is often called the science of joy. Studies show that if the people who work in the organization are happy – they are more successful, more energetic, and more loyal, they are less likely to lose their jobs, and they are different. When a leader gains such an understanding, he or she can create a work environment ultimately encourage, satisfy, and improve performance (Robbins and Judge, 2007).

Each work environment has a diverse group of people representing different cultural, social, economic, political, and religious backgrounds. With all these differences, employees carry their personal relationships, feelings, personalities, and core values. All of these factors shape employee behavior in the workplace, so it is important that managers and employees are fully aware of these differences and their impact in the workplace. It is the responsibility of the manager to treat employees in a way that maintains and increases motivation, job satisfaction, and performance. In fact, the most important motivating factor for positive leadership is meeting the needs of all stakeholders in the organization. The core of all human behavior is the satisfaction of needs. Abraham Maslow’s theory of the hierarchy of needs is still applicable to understanding human motivation, leadership development, and personal development. In fact, Maslow’s notion of the hierarchical requirement of employers’ responsibility to provide a work environment that motivates employees and enables them to realize their unique potential (self-realization) is more important today than ever before.

Objectives

The objectives of the present study were:

1. To analyze the relationship between accomplishment of the needs of the employees and positive environment of an organization.

2. To explore the characteristics of leader that helps in creating positive environment in an organization.

METHODS

Qualitative method of research was used. Data regarding positive environment and need of employees were collected from eight college principals, six school principals, and 26 teachers of schools. The technique of face-to-face interview and questionnaire was used for data collection.

RESULTS

Objective-1 analyzes the relationship between meeting employee needs and a positive organizational environment.

Everyone has a motivational need. Basic needs are innate. Abraham Maslow’s hierarchy of needs helps explain how those needs motivate each person. Maslow’s hierarchy of needs says that all needs must be met from the first, which satisfies the most obvious needs of survival. Higher demands for personal influence and development can only be met if the lower demands for physical and emotional well-being are met. On the other hand, if things that meet our lower level needs are removed, we no longer have to worry about maintaining the higher order needs. Maslow provides a hierarchy of needs.

(1). Biological and physiological needs – air, food, drink, shelter, heat, sex, sleep, etc. (2) Security requirements – protection from the elements, security, order, law, restrictions, stability, etc. (3) Possession and love needs – team, family, affection, relationship, etc. (4). Valuable requirements – self-esteem, achievements, mastery, independence, position, leadership, prestige, leadership responsibility, etc. (5) Requirements for self-realization – searching for personal potential, self-realization, personal growth, and top experiences. In 1970, Maslow included “cognitive” and “aesthetic” needs. (6) Cognitive needs – knowledge, meaning, etc. (7) Aesthetic requirements – respect, research and beauty, balance, shape, etc. And (8) More needs – help others achieve themselves. Maslow’s concept of self-realization is directly related to today’s challenges and opportunities for employers and organizations – ensuring the right meaning, purpose, and true personal development for their employees, for a lifetime – not just for work. Successful organizations and employers are those who care, understand, motivate, and enable the personal growth of their employees toward self-fulfillment — far from traditional job-related training and development and, of course, far from old-style governance democracies.

Objective 2 – To explore the characteristics of leader that helps in creating positive environment in an organization.

Positive leaders believe that continued success is based on a serious and compassionate commitment to helping people identify, seek, and realize their unique potential. As people grow as people, they automatically become more efficient and valuable than employees.

Positive leadership creates a healthy environment by meeting the needs of all employees. In fact, human behavior is based on the fulfillment of needs. Maslow's hierarchy of needs is ideal for creating a positive environment in any workplace. If superiors can provide enough attention to meet the needs of employees, a healthy environment will automatically be created.

Positive aspects of the leadership role were identified: If employees are rewarded or rewarded for a good job, given responsibility, a sense of belonging among employees, and respects excellence, employees can focus well on the group. Such actions can motivate employees to develop they respect, not only reciprocally to the people they respect, but also to the whole group or team to which they belong.

Leader A leader who consults with his subordinates, respects their expertise, and values to an organization that know how they want to be treated and that respects them, that sends a strong message, that communicates with coworkers in a way that shows respect for leadership and finds that asking questions along with appreciative consultations are the essence of respecting leadership. People are interested in questions. However, the negative effects are quite obvious; if someone asks you and starts playing on your phone, answer them. If I ask you how you can and I listen to you carefully, this simple act will have very positive consequences.

Conversation is a very effective way to show others that they are valuable: It tells you that you need to talk to someone and that you respect them. It satisfies the aforementioned human ability: If I am talking to you, it is definitely because I believe your message is valuable. Hence, the question is a way of respect that is respected. Similarly, it is a very different way of expressing leadership from one that teaches a philosophy of

sovereign leadership that focuses primarily on visual leadership that shows a clear path to the future or a predetermined goal. The role of the leader is undoubtedly to make decisions and reduce uncertainty.

Positive A positive leader does not make separate decisions; they will accept the views of their followers. Basically, employees are happier and their motivation grows in an environment where they feel valued.

Positive leadership is a great place to work in an organization, but it provides insignificant added value and benefits to company branding, hiring, retaining staff, and so on. A happy and stable workforce helps reduce costs, and research shows that positive leadership can help organizations improve performance.

CONCLUSION

The application of the principles of positive psychology in the field of management provides a positive environment in which the needs of all employees are met. In such organizations, the most employees achieve greater demands of self-fulfillment — seeking personal potential, self-fulfillment, personal growth, and superior experience. In addition to personal growth, it also encourages organizational growth. The role of the leader is very important in creating a positive environment.

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Research Article

Impact of yoga on anxiety and self-confidence of sports players

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ABSTRACT

Yoga is an ancient health art developed and perfected over the centuries by the sages and wise men of ancient India. Yoga is an art, science, philosophy, and technique which raise the capacity of human body and mind. Mental preparation for competition is an increasingly important factor in any sport competitions. Anxiety and self-confidence may cause of the low performance of any sport player. The objective of the present study is to study the impact of yoga on anxiety and self-confidence of sport players. A sample of 100 sport players was collected by random sampling method from the various colleges of Latur district. Their age ranged between 15 and 20 years. Rekha Agnihotry's self-confidence inventory was selected for administration to find out the level of self-confidence and Sinha's Anxiety Scale to rate down the anxiety level of sport players. The same sample was administered pre- and post-test before and after practice. The selected asanas along with the Surya Namaskara, Pranayams, Om Chanting, and Yoga Nidra were given training under supervision for 3 months daily (Sunday off). After the yoga training was completed, post-test was conducted. The data of pre- and post-test were observed and a great difference was found out. The statistical technique mean, SD, and "t" value were used to analyze the data. In first finding, statistical significant ($t = 9.45, P < 0.05$) difference was proofed which showed the higher level of self-confidence after yoga practice. In second findings, a significant ($t = 8.28, P < 0.05$) positive result was obtained, that is, anxiety level was decreases after yoga practice.

Keywords: Surya namaskara, Yoga nidra

INTRODUCTION

Yoga is considered to be one of the most important effective and valuable tools available for man to overcome various physical and psychological problems. According to the Kuvalayananda and Vinekar (1968), yoga includes cultivation of correct attitudes and reconditioning of the neuromuscular systems. Yoga helps the whole body to enable it to withstand greater stress and strain. Yoga proposes healthy diet and encourages the natural process of elimination, whenever it is necessary. Yoga aims at an integrated and harmonious development of all the potentialities of man.

Anxiety is an emotional state of mind where an apprehension of danger or loss or suffering is a prominent feature. It generally arises as a result of apprehension of something unknown, which seems to create conflicts, tension, and disturbances in

the primitive urges. Spielberger (1966) has placed anxiety into two categories, that is, state anxiety and trait anxiety. State anxiety is a situational, which develops on account of severe demanding situation and this does not last long; whereas trait anxiety has deeper roots and it refers to inherent anxiety proneness developed due to defective socialization.

Studies conducted by Vicente Pedro (1987) and Bhushan (1998) found significant reduction in the state trait anxiety of the subjects due to regular practice of yoga. In another study, Malathi *et al.* (1998) conducted a yoga intervention study on MBBS students and tested them before and after the examination, and found anxiety reduction in the students at the time of examination. Srivastava *et al.* (2004) also found significant reduction in MBBS students anxiety level as a result of yoga practice.

Self-confidence is considered as one of the motivators and regulators of behavior in a individuals everyday life (Bandura, 1986). Self-confidence is a positive attitude of oneself toward one's self concept. In general terms, "self-confidence refers

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to an individual's perceived ability to act effectively in a situation to overcome obstacles and to get things go all right" (Basavanna 1975). Many researchers such as Goswami (1980), Agnihotri (1987), and Kaur (1993) have observed positive relationship between self-confidence and adjustment.

Yogic therapy is very simple, cost effective, improves fitness, lowers blood pressure, promotes relaxation and self-confidence, and reduces stress and anxiety. People who practice yoga tend to have good coordination, posture, flexibility, range of motion, concentration, sleep habits, and digestion. King, Roy, and Brownstone (1999) found that meditation enhances self-confidence, sense of well-being, and empathy; improve cognitive functions as evidenced by increased alpha wave activity and its synchronization. It also increases mental concentration and reduces susceptibility to stress and strain. Thus, meditation promotes complete health and well-being in an individual.

Hypothesis

1. There will be a difference in the levels anxiety of sport players before and after the practice of yoga.
2. The level of self-confidence of sport players will be higher after the practice of yoga.

METHODOLOGY

Sample

A sample of 100 sport players was collected by random sampling method from the various colleges of Latur District. Their age ranged between 15 and 20 years. All sport players were from social middle class.

Tools

Agnihotri's Self Confidence Inventory (ASCI): This is developed by Rekha Agnihotri (1987). This consists of 50 items with two response alternatives, namely, "Yes" or "No." Abbreviated name ASCI has been used so that the respondent may not decipher the real purpose of the test and fake good. For each item, a score of one is assigned for a response indicative of lack self-confidence. Hence, lower the score, higher would be the level self-confidence and vice versa.

Sinha's Comprehensive Anxiety Test by Sinha and Sinha: It is a test available both in Hindi and as well as in English. It covers five levels of anxiety. The test contains 90 items of manifest anxiety. It is 15–20 min test, easily administrable and scorable. For each item, a score of one is assigned for "Yes" response. The higher scores obtained in the test indicate greater anxiety levels.

Procedure

The same sample was administered pre- and post-test before and after practice. The selected asanas along with the Surya

Table 1: Mean difference between pre-test and post-test of anxiety ($n=100$)

Variable	Mean diff.	SD diff.	"t" value
Anxiety	12.05	1.45	8.28
Self-confidence	9.45	0.96	9.45

** $P < 0.05$

Namaskara, Pranayams, Om Chanting, and Yoga Nidra were given training under supervision for 3 months daily (Sunday off). After the yoga training was completed, post-test was conducted.

RESULTS AND DISCUSSION

The perusal of Table 1 reveals that the mean difference between before and after practice of yoga on anxiety "t" value 8.28 is highly significant at $P < 0.05$ level. This clearly shows that yoga practice leads to a significant alleviation of anxiety level of the sport players. The results are in agreement with those reported in Shashi, Chawla, Dhar, and Katiyar. (1991), Gupta and Gupta (2006), Gupta, Khera, Vempati, Sharma, and Bijalani (2006) and Jadhav and Havalappanavar (2007) who also reported decrease in state anxiety level significant at $P < 0.001$ level as result of yoga practice. Kaliappan and Shanmugam (1982) and Venkatesh *et al.* (1994) found significant reduction in state anxiety level at $P < 0.05$ level. From Table 1, it is also evident that there is a significant difference in self-confidence level of sport players before and after the practice of yoga. The mean difference 9.45, SD = 0.96, and "t" value 9.45 are highly significant at $P < 0.05$ level. This shows that yoga practice is useful in increasing the self-confidence level of the sport players. Therefore, the first and second hypothesis is accepted.

CONCLUSION

It is well known fact that success requires a great deal of patience and hard work. To achieve victory in a sport player is required to practice and train everyday. As such, they need to have well enough self-confidence and less anxiety. The analyzed and interpreted findings of the study have led to the following conclusions.

This study examined the impact of yoga on anxiety and self-confidence of sport player. This study reveals that yoga practice decreases level of anxiety and increases level of confidence in sport players. It should be concluded that yoga is effective in physical education to improve the performance of sport player.

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Research Article

A comparative study on sports infrastructure facilities available in the affiliated colleges of Mangalore University and Bangalore University

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ABSTRACT

This study on available sports infrastructure facilities in the top five sports achieved colleges of Mangalore University and Bangalore University. The purpose of this study is to examine the various types of sport infrastructure facilities available in the department of physical education and sports top five achieved colleges and its influence to bring the laurel to the concerned universities in the South-Zone and All India university level of competition. Using percentile analyses, an assortment of sport infrastructure surveys with an overall sample size of $n = 5$ (colleges in each University), compel the data concerning with the departments Physical Education of Mangalore University and Bangalore University. The results hint at that different sports facilities in department of physical education and sports in the colleges comes under Mangalore University and Bangalore University of Karnataka state, colleges that are having fitness centers, indoor facility, outdoor facility, training, coaching camps, implementation of modern technology and other outdoor facilities has to be improved and some facilities has to provide to develop for the increase their level of sports achievements in the colleges for contribute for their respective universities, which are affiliated under Mangalore University and Bangalore University.

INTRODUCTION

The availability of adequate sports facilities throughout the country is basic to the development and broad-basing of Sports. In addition to the Union and State Governments, the sustained involvement of other agencies, including the Panchayat Raj Institutions, Local Bodies, Educational Institutions, Sports Federations/Associations. Clubs and Industrial undertakings will be enlisted in the creation, utilization and proper maintenance of the Sports infrastructure is very essential to the keep top priority of the country in the line of sports achievers at world level of sports.

While existing play fields and sports stadiums, both in provincial and metropolitan regions, will be kept up for sports purposes, the presentation of reasonable enactment might be

considered for giving open regions to encourage games and sports. Steps would be taken to develop ease practical and climate well-disposed plans in such manner, so greatest profit could be inferred through generally low degrees of speculation. Endeavors will likewise be made to ideally use the accessible Infrastructure and manpower and exceptional coaching camps are co-ordinate, during the get-away to give concentrate for preparing the skilled games, even as they seek after their scholarly work in the college level.

Hypothesis of the Research

It was hypothesized that the top achieved five colleges of Mangalore University and Bangalore University have adequate facilities of sports infrastructure in the department of physical education and sports.

It was hypothesized that due course of available sports infrastructure in the top achieved colleges and they trained the sportspersons, that benefits were taken by the universities for achieving in the South-Zone and All India Inter-University competition.

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Objectives of the Study

1. To have a depth study of the sports infrastructure facilities available in the top five Colleges, it influence for the promotion and development of physical education and sports in the Mangalore University and Bangalore University.
2. To measure the sports infrastructure facilities available in the different top achieved colleges in the Inter-Collegiate competitions of Mangalore University and Bangalore University.

METHODOLOGY

The methodology and procedure of the research study are used for the purposes which underlines the goals, which are to be achieved. The hypothesis of the research is to know sports infrastructure facilities in the colleges under Mangalore University and Bangalore University. The study was conducted through survey by preparing questionnaire to obtain the existing facilities on sports infrastructure in the top five achieved colleges of concerned universities. With the help of self-prepared questionnaire, data were collected from the concerned colleges of Mangalore University and Bangalore University. Necessary statistical application has adopted to find the exact results and data tables, graphs were shown were ever necessary. The present table of findings with the help of statistical analysis which are presented along with their explanations thereby. Tables which need to elaborate the understanding of processed data are presented by were ever necessary.

Selection of the Sample

The purpose of the study was to find out the sports facilities of colleges Under Mangalore University and Bangalore University. Researcher has selected top sports achieved five colleges from each University to find out the sports infrastructure facilities in the department of physical education and sports.

Collection of the Data

Based on the self prepared questionnaire were using for data collection from the top sports achieved colleges in the Inter-Collegiate competitions of Mangalore University and Bangalore University. Before collecting the data, researcher has to contact personally and discussion were made with expertise personalities in the field of physical education and sports for finalized the questionnaire.

Analysis and Interpretation of the Study

The analysis of data collected through the administration of the questionnaire has been presented in this chapter. In order to survey the sports infrastructure and facilities in degree colleges of Mangalore University and Bangalore University of Karnataka state percentage were used. The questionnaire were

based on the major areas of 8 variable. Researcher received 5 questionnaires duly filled from the physical education Directors of the concerned top five degree colleges.

Sports Infrastructure Facilities

Table 1 shows that, 100% of colleges under Mangalore University and Bangalore University have fitness centers. 60% of colleges under Mangalore University and 80% of colleges of Bangalore University having indoor facility, 100% of colleges under Mangalore University and 80% colleges of Bangalore University having outdoor facility and 100% colleges under Mangalore University 80% colleges under Bangalore University having Training and coaching facility and 20% of colleges under Mangalore University and 40% of colleges under Bangalore University having Technology enabled class rooms.

When comparing with sports facilities under Mangalore University and Bangalore University having good and well equipped fitness centers, indoor facility, training, coaching facility, technology and class room facilities than the colleges under Mangalore University and Bangalore University good and well infrastructure facilities were provided for sports training and coaching concern, when comparing with outdoor facility Mangalore University having better facilities rather than Bangalore University.

Table 1 shows that, in the South-Zone and All India Inter-University competition, Mangalore University secure more number of medals and they are produced better sports personality rather than Bangalore University due to good available infrastructure facilities in the colleges and their physical education department provided well and advanced training and coaching in the competitive manner, so that result we can found in the national level competitions. This might be the reason each and every affiliated colleges must have the sports infrastructure facilities to contribute lot for the universities in the field of competitive sports rather than expected the better sports infrastructure facilities in the concerned universities, because universities were conduct training or coaching camps during the time of sending the teams for the Inter-University competition and summer coaching camps otherwise, concerned university will not at all possible to secure and getting the winning result in the competitive world of sports.

From the Table 2 it is shows that, percentage value of 100 in Kabaddi, Cricket pitch, Kho-Kho, Ball badminton, Volleyball, Handball and Throw ball and 80% of the Hockey, Football, Tennis and Netball trams of colleges under Mangalore University 100% in Kabaddi and Cricket, 80% in Volleyball, Handball and Throw ball trams of colleges under Bangalore university.

Table 1: The details of sports facilities available in Mangalore and Bangalore Universities

Colleges Under Mangalore University					Colleges Under Bangalore University			
Facilities	Yes		No		Yes		No	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Fitness centers	5	100	0	00	5	100	0	00
Indoor Facility	3	60	2	20	4	80	1	20
Outdoor Facility	5	100	0	00	4	80	1	20
Training and coaching facility	5	100	0	00	4	80	1	20
Technology enabled class rooms	1	20	4	80	2	40	3	60
Other								

Table 2: Detailed information about outdoor sports facilities available in the colleges of Mangalore and Bangalore Universities

Facilities	Colleges Under Mangalore University				Colleges Under Bangalore University			
	Yes		No		Yes		No	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Hockey	4	80	1	20	2	40	3	60
Kabaddi	5	100	0	00	5	100	0	00
Cricket Pitch	5	100	0	00	3	60	2	40
Football	4	80	1	20	2	40	3	60
Kho-Kho	5	100	0	00	2	40	3	60
Ball Badminton	5	100	0	00	2	40	3	60
Volleyball	5	100	0	00	4	80	1	20
Basketball	3	60	2	40	2	40	3	60
Handball	5	100	0	00	4	80	1	20
Tennis	4	80	1	20	2	40	3	60
Throwball	5	100	0	00	4	80	1	20
Archery	0	00	5	100	0	00	5	100
Netball	4	80	1	20	3	60	2	40
Any other (Softball)	4	80	1	20	1	20	4	80

It clearly indicate that, maximum outdoor sports facilities having by the Mangalore University, but in the game kabaddi more facilities available in the colleges of Bangalore University, so both the Universities are having better achievement in the outdoor competitive event in All India Inter-University tournaments.

When comparing with facilities colleges under Bangalore University have very less facility compare to colleges under Mangalore University. When compare with same games facility the colleges under Mangalore University and Bangalore University having very less percentage. From many years sports persons are representing the respective university to participate in the South-Zone and All India Inter University competition in Mangalore University and Bangalore University, they are having better sports infrastructure facilities in the colleges, researcher clearly stress over that, those colleges having better sports infrastructure they can possible to uplift the sports persons

present and future in the National and Inter-National competition for the concerned universities. It mandatory that, even though universities were established the infrastructure sports facilities will not used by the sports persons throughout the year in a systematic and planned manner, it may cause lack of maintenance and it is very difficult to maintain the ground as well as equipment and also financial burdens for the concerned university. As per the researcher concern colleges must have more sports infrastructure facilities rather than the universities, it is more useful and give good result in the higher level of competitions.

SUMMARY, CONCLUSION AND RECOMMENDATION

Physical education and competitive sports is also considered a process by which, individual is shaped to fit into the

society to maintain and advance the social order. It is a system designed to make an individual rational, mature and a knowledgeable human being. Physical education and sports is the modification of behavior of an individual for the better adjustment in the society and for making a useful and worthwhile citizen. The pragmatic view of physical education and sports highlights learning by doing and learning through physical movement.

From many years sports persons are representing the respective university to participate in the South-Zone and All India Inter University competition in Mangalore University and Bangalore University, they are having better sports infrastructure facilities in the colleges, researcher clearly stress over that, those colleges having better sports infrastructure they can possible to uplift the sports persons present and future in the National and Inter-National competition for the concerned universities. It mandatory that, even though universities were established the infrastructure sports facilities will not used by the sports persons throughout the year in a systematic and planned manner, it may cause lack of maintenance and it is very difficult to maintain the ground as well as equipment and also financial burdens for the concerned university.

Researcher included to complete this study is based on Indoor and Outdoor facilities available in the colleges of Mangalore

University and Bangalore University and it impact on the South-Zone and All India Inter-University competitions.

Recommendation of this Study

1. The result of the present study may be considered as a review for further study in the area of sports infrastructure and outdoor sports facilities.
2. Similar study may be conducted in other professional courses in the field of physical education and sports.
3. This study may recommend for all the colleges can generate resource and develop infrastructure.
4. This type of study can be conduct in comparison of different states in India.

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Research Article

Actual situation of subjective factors ensuring the quality of students' extracurricular activities of students at Vietnam University of traditional medicine

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ABSTRACT

Using the method of analyzing and synthesizing documents and the interview method, we assessed the actual situation of 03 subjective factors ensuring the quality of extracurricular activities of students at Vietnam University of Traditional Medicine. The results showed that: The majority of students had a positive perception of the effects of practicing extra-curricular sports and physical training; The percentage of students who self-assessed their interest and enthusiasm for exercising is still low, reaching only 43.41%; The percentage of students who wanted to participate in extra-curricular training is high (over 70%), in which over 92% want to practice Vietnamese traditional martial arts in the form of a club with instructors; The percentage of students with active and sustainable motivation to practice is high; The main cause of hindrance is the lack of facilities, yards, training programs, and interesting contents.

Keywords: Subjective factors, Quality assurance of extracurricular exercise

PROBLEM RESEARCH

“Quality is the suitability for purposes” is the most appropriate definition for higher education in Vietnam today and for each training field in particular. Accordingly, the educational quality is the fulfillment of the educational institution or the educational program's purposes, the fulfillment of the requirements from the Education Law and Amending Law, the supplement of a number of articles from the Education Law and Higher Education Law, and the suitability with the needs of human resources for the socio-economic development of the locality and the whole country.

The educational goal is a standards system of a personality model that needs to be formed in a certain human subject of education.

From that point of view, the goals of school sports in universities and colleges are set out specifically: To achieve the common

goals of undergraduate and graduate education; To contribute to building a healthy cultural and spiritual life, preventing social crimes; To discover and foster sports talents for the country. Along with curricular physical education, extracurricular sports play an important role in improving health and fitness, educating students' will and personality qualities, and at the same time creating a favorable and potential environment to discover and foster sports talent.

The quality of higher education must be in a process that transforms learners, in which students' learning must be closely watched and supported by teaching, assessing, as well as other factors. 5 factors reflecting the quality of education, which are of interest to scholars, include: Input; Training process, Training results; Output and Effectiveness.

In order to improve the quality of training, the factors that ensure the quality of education will directly affect the quality of the input, the quality of the training process, the training results and the output. It will also indirectly affect the educational effectiveness. Therefore, assessing the actual situation of factors ensuring the quality of education as a practical basis for building a suitable and effective extra-curricular training program for Vietnamese traditional martial arts for students

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of Vietnam University of Traditional Medicine is a necessary and practical topic.

METHODS

The research process used the following methods: Method of analyzing and synthesizing documents, interview method, and mathematical statistics method.

Respondents

1200 students of 04 university courses (from K13 - 4th year, to K16 - 1st year) who are studying at the University. The respondents are randomly selected, each course includes 300 students. The results of interview responses are determined according to 2 levels and evaluated by percentage.

36 staff (including 06 experts, 12 managers, and 18 teachers) who are all in the field of PE inside and outside the University. The results of the interview to select the factors ensuring the quality were evaluated according to the 5-level Likert scale with the distance value $n = (5-1)/5 = 0.8$; No influence from: 1.00 - 1.80 points; Low influence from: 1.81 - 2.60 points; Average influence from: 2.61 - 3.40 points; Quite influential: 3.41 - 4.20 points; Very influential from: 4.21 - 5.00 points. The research selected factors that achieve 85% or more of the total score, equivalent to an average value of 4.25 points at the Very Influential level, to be the main factors affecting the movement of practicing extra-curricular sports.

Time and place of the survey: October 2019, Vietnam University of Traditional Medicine.

RESEARCH RESULTS AND DISCUSSION

Selecting Factors Ensuring the Quality of the Extra-curricular Training of Students at Vietnam University of Traditional Medicine

Based on the viewpoint of assessing the quality of physical education and extra-curricular sports activities, the actual situation of extra-curricular sports activities is assessed on the following aspects: (i) Students' extra-curricular sports activities movements; (ii) Factors ensuring the quality of extra-curricular sports activities; (iii) The actual situation of the Vietnamese traditional martial arts training program; (iv) The actual situation of the fulfillment of school sports purposes.

In order to select the factors that ensure the quality of the extra-curricular sports activities movement of students at Vietnam University of Traditional Medicine being scientific and objective, the study proceeded through 2 steps: Step 1, on the basis of documents referencing, pedagogical observation, and

direct interviews with 12 PE and training programs building experts, we initially identified 10 factors (03 objective factors and 07 subjective factors); Step 2, using questionnaires, the research interviewed 36 officials inside and outside the University. The results have allowed the research to choose 03 subjective factors and 06 objective factors, in which the subjective factors include: Students' awareness about extra-curricular sports activities; The need to practice extra-curricular sports of students; Motivation and attitude towards participating in extra-curricular sports activities of students.

It can be seen that the selected factors have relatively fully reflected the aspects that ensure the quality of extra-curricular training activities of students, and are divided into 2 groups: subjective factors and objective factors.

Assessing the Actual Situation of the Subjective Factors Ensuring the Quality of Extra-Curricular Activities of Students at Vietnam University of Traditional Medicine

The actual situation of the subjective factors ensuring the quality of extra-curricular sports activities of the research subjects was surveyed and evaluated through 02 groups of subjects: 1200 students studying at the Vietnam University of Traditional Medicine and 36 managers, teachers.

Actual situation of Students' Awareness about Extra-curricular Sports Activities

The survey results are shown in Table 1.

After the interview, it is shown in Table 1 that:

In terms of awareness, the interviewed administration officers and lecturers had a positive perception of the effects of talented sports training on students in improving health accounted for 86.11%, helping to develop physical strength accounted for 91.67%, helping to keep fit accounted for 83.33%, and other effects such as making friends, relaxing also accounted for 77.78% and 50.00% respectively.

As for students, there is awareness about extracurricular sports such as: good for health accounted for 88.25%, physical development accounted for 86.83%. The other perceptions of keeping fit, making friends and relaxing accounted for 72.58% to 78.51 respectively. However, the reality shows that there are still many students (from 7.06% to 8.75%) think that participating in talented sports training is not effective, time-consuming, or useless.

Actual Situation of the Needs to Participate in Extra-curricular Sports Training of Students at Vietnam University of Traditional Medicine

The thesis conducted a survey on the needs to participate in extra-curricular sports training of students by interviewing

Table 1: Survey results on students' awareness about extra-curricular sports activities

No.	Content	Managers, teachers (n=36)		Students (n=1200)	
		m _i	%	m _i	%
Students' awareness about the effects of extra-curricular sports activities					
1.	Good for health	31	86.11	1059	88.25
2	Develop physical strength	33	91.67	1041	86.83
3.	Keep fit	30	83.33	929	77.42
4.	Make friends	28	77.78	871	72.58
5.	Help to relax	18	50.00	942	78.51
6.	Waste time and effort	0	0.00	96	7.06
7.	Ineffective	0	0.00	105	8.75

1200 students with questionnaires, focusing on 04 main contents:

- First, the needs to participate in extra-curricular training of students;
- Second, the needs to participate in sports according to talents and interests;
- Third, the needs to participate in the form of a sport club with an instructor.
- Fourth, the needs to participate in practicing extra-curricular Vietnamese traditional martial arts at the University.

The interview results of numbers 1, 2, 3 are presented in Table 2.

Because the practice of extra-curricular Vietnamese traditional martial arts of students at the Vietnam University of Traditional Medicine is the object of the research topic, with the desire to determine the practical basis for the construction of an extra-curricular training program, the research designed a more in-depth interview. The results are presented in Table 3.

The interview results in Table 2 show that:

The percentage of students wanting to participate in extra-curricular sports and physical training activities (73.0%) is much higher than the actual rate of students participating in training (57.58%). In fact, the number of female students at the Univesrity is higher than the number of male students, however, the percentage of male students wanting to participate in extra-curricular training is 78.75%, while that of female students is only 69.17%. The results showed that many students wanted to participate in extra-curricular training but did not participate.

Table 2: Survey results on the needs to practice extra-curricular Vietnamese traditional martial arts of the students at Vietnam University of Traditional Medicine (n=1200)

No.	Interview content	Interview results	
		m _i	%
1.	Want to participate in practicing extra-curricular Vietnamese traditional martial arts (n=1200)		
	Have the need to participate in practicing	312	26.00
	Do not have the need to participate in practicing	724	60.33
	Undecided	164	13.67
2.	Want to participate in the form of a club (n=312)		
	Want to participate in a club	288	92.31
	Do not want to participate in a club	24	7.69

Table 3: Actual situation of motivations, practice attitudes, and reasons for not participating in extra-curricular sports of students at Vietnam University of Traditional Medicine

No.	Interview content	Results	
		m _i	%
Motivations to practice extra-curricular sports (n=691)			
1	Like the sport	546	79.02
2	Practice to enhance physical strength	371	53.69
3	Practice to be in good shape	397	57.45
4	Practice to exchange and expand relationships	351	50.80
5	Practice to express themselves	116	16.79
6	Practice because they are drawn in by their friends	87	12.59
7	Practice to kill time	100	14.47
8	Practice because of curricular physical education results	506	73.23

(Contd...)

Table 3: (Continued)

No.	Interview content	Results	
		m _i	%
Motivations to practice extra-curricular sports (n=691)			
Attitudes of students towards practicing extra-curricular sports (n=691)			
1	Like and practice enthusiastically	300	43.42
2	Normal	224	32.42
3	Do not like to practice	167	24.17
Reasons for not participating in extra-curricular training (n=509)			
1	Do not like sports	145	28.49
2	Lack of facilities, courts and yards	413	81.14
3	Timeconsuming	93	18.27
4	Extra-curricular training is not effective	121	23.77
5	Dangerous, easily injured	63	12.38
6	Budget consuming	102	20.04
7	Training content is boring, uninteresting	199	39.10

This shows that, if the cause is clearly understood and there are reasonable measures, it is possible to attract more of this group of subjects to participate in training.

Regarding the needs to participate in practicing favorite sports, for male students, this focused on Football (22.42%), Martial Arts (26.00%), Gymnastics (Gym, 32.50%); other sports have scattered and lower percentages, with the lowest being Swimming and Basketball. For female students, the favorite extra-curricular sports are Martial Arts (19.03 %) and Gymnastics (Gym, Aerobic, Fitness) accounting for 30.69%; other subjects accounted for a very low percentage of less than 10%.

Regarding the need to participate in extra-curricular training in the form of a club with an instructor, the majority chose this, accounting for over 70%. Thus, students want to practice in a semi-professional, organized environment, with scientific training programs, plans, and instructors.

The interview results in Table 2 clearly show that 26.0% of the total number of students have the need to participate in practicing Vietnamese traditional martial arts and 13.67% answered that they have not decided. Out of the 312 students who have the need to participate, 92.31% have the need to participate in the form of a club with an instructor.

It can be seen that the choices of the students of the Vietnam University of Traditional Medicine are highly concentrated in Martial Arts and Gymnastics (Gym, Aerobic, Fitness). These are also the contents of the main PE program. Due to the lack of infrastructure of the University, subjects such as Badminton, Athletics, Volleyball, Basketball, Swimming, and Table Tennis are rarely chosen by students. This is also one of the special points when learning about the actual situation of the extra-curricular sports training of students.

From the above results, it is possible to organize the implementation of the practice of extra-curricular Vietnamese traditional martial arts for students at Vietnam University of Traditional Medicine. It is also suitable for the students to organize it in the form of a club with a scientific training program, plan, and an instructor.

Actual Situation of Motivations, Practice Attitudes and Reasons for Not Participating in Extra-curricular Sports of Students

The results of the survey on the actual level of participation in extra-curricular sports training of the students at Vietnam University of Traditional Medicine show that 691/1200 surveyed students participated in extra-curricular activities and 509/1200 did not. From this result, the research conducted a survey on the actual situation of motivations, attitudes towards participating in extra-curricular training, and the reasons for not participating of the students through the form of interviews with questionnaires for 2 groups of students who participated and did not participate in extra-curricular training. The results are presented in Table 3.

The survey results in Table 3 show that:

Among the 691 students who participated in practicing extra-curricular sports, the interview results reflected that the students' motivations to practice were very positive such as: Like the sport (79.02%), Practice to enhance physical strength (53.69%); Practice to be in good shape (57.45%); Practice to exchange and expand relationships (50.80%); Especially, the motivation for curricular physical education results accounted for 73.23%. Besides, some other less sustainable motivations also received from 12.59 to 16.79% of choices. This is a favorable condition for the organization and implementation of extra-curricular training activities for students at Vietnam University of Traditional Medicine.

Regarding the attitudes towards participating in practicing, it is noteworthy that the rate of students who self-assessed about the level of interest and enthusiasm to participate in practicing is low, reaching only 43.41%. The remaining 56.59% of students thought it is normal and disliked extra-curricular training (24.17%).

To find out the reasons why the students did not participate in sports activities, the researched interviewed a group of students who did not participate in practicing. The results show that the reasons identified were quite diverse, in which, especially, 02 reasons for not participating in extra-curricular training were due to the lack of facilities, which accounted for 81.14%, and the lack of training program and interesting content. This result coincides with the assessment of the actual situation of the facilities in the objective factors section of the research.

CONCLUSION

The research results have selected 03 subjective factors ensuring the quality of extra-curricular sports training activities of the students at Vietnam University of Traditional Medicine, including Awareness and attitudes of students towards participating in extra-curricular sports training activities; The needs to practice extra-curricular sports of students; Motivations to participate in extra-curricular sports training of students.

The results of the survey on the actual situation of ensuring factors show that: In terms of awareness, the majority of

students have a positive perception of the effects of extra-curricular sports training, however, there are still some students who are not properly aware; The percentage of students who want to participate in extra-curricular activities is high (over 70%), of which over 92% want to practice Vietnamese traditional martial arts in the form of a club with an instructor; Most students have a positive and sustainable motivation to practice; Regarding the attitudes toward practicing sports, the percentage of students who self-assessed the level of interest and enthusiasm in participating was only 43.41%, the remaining 56.59% of the students thought that it was normal or did not like to practice extra-curricular sports; The main causes of hindrance are the lack of facilities and the lack of training programs, as well as interesting content.

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Research Article

Nutrition - sports performance

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INTRODUCTION

Nutrition plays an important role for sport performance in young athletes, in addition to optimal growth and development. Macronutrients, micronutrients, and fluids in the proper amounts are very much essential to provide the required energy for growth, activity, and performance. It therefore becomes important for young athlete to learn what, when, and how to eat and drink before, replenish during and after activity for optimum performance.

The prime reasons can be attributed to lack of proper nutrition knowledge or nutrition practice or have a wrong perception or attitude toward nutrition. Students prefer readily available foods usually with the low nutritive value instead of nutritive packed foods. Apart from this irregular meal pattern especially at schools, as they tend to not to have lunch during lunch breaks as they love to play during that time even though parents pack food.

METHODOLOGY

Sample

The sample consists two types of sports persons training for (1) athletics and (2) martial arts [Table 1].

Objectives

The following objectives were included in the study:

1. To compare the two groups of sports persons on certain relevant psycho social factors.
2. To compare male sports persons with female sports persons on psycho social variables.

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Hypothesis

1. The two groups of sports persons will differ on the psychological variables on self-concept and aggression.
2. Male and female sports persons will differ in all the psycho social variables.
3. The most important social factor judged as affecting performance will differ for the two sports and sex groups.

Analysis of Data

The t-value indicates that, there is no significant difference between the two groups (athlete and martial arts) on perceived self [Tables 2 and 3].

The t-value indicates that there is exist significant difference between the two sports (athletic and martial arts). The results show that the aggression level of athletics and martial arts groups has low but compare to athletes and martial arts sports persons has high score. This shows the level of aggression is differ [Table 4].

It has been found that the group has in general good self-concept in males and of the female had scores on self-concept higher than the group median [Table 5].

The t-value indicates that there is a significant difference between the two groups.

Table 1: Distribution of the sample in two groups

Events	Male	Female	Total
Athletics	15	15	30
Martial arts	15	15	30

Table 2: Difference between the two groups on self-concept

	Mean	SD	t-value
Athlete	58.75	11.59	0.021
Martial arts	58.65	10.12	

Table 3: Difference between the two groups on aggression

	Mean	SD	t-value
Athlete	4.15	1.57	1.8
Martial arts	4.82	1.84	

Table 4: Male and female differences on self-concept

	Mean	SD	t-value
Male	59.41	11.90	0.44
Female	57.75	8.53	

Table 5: Male and female differences on aggression

	Mean	SD	t-value
Male	4.2	1.59	1.108
Female	4.77	1.22	

CONCLUSIONS

1. There is significant difference between athletics and martial arts sports persons on psychological variables.

2. There is significant difference between male and female sports persons on psychological variables, self-concept, and aggression.
3. The most important social factor judged as affects performance was different for two sports groups and for male and female.

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Research Article

Cardiac related risks among different sportive events of Ethiopian youth sport athletes; the unexplored side

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ABSTRACT

Cardiac-related risks among different sport events in Ethiopian Youth Sports Academy (EYSA) has not been explored. This study was done to determine Cardiac related risk symptom among different sportive events of EYSA athletes. Among young athletes who underwent symptom-limited bicycle exercise stress testing, systolic blood pressure ratio (SBPR) was mainly recorded to settle if there exists a delay in this measure during the post-workout period. Consequently, a delayed decline in SBP during recovery was determined as a ratio of SBP at 3 min of recovery to SBP at 1 min of recovery. Hence, this value and prior ECG result were used to observe if there exists a significant difference between different sportive events, Football, Basket Ball, athletics, and taekwondo. Sport events and samples were selected randomly using simple random sampling. Thirty eligible participants who claimed part in exercise stress testing were considered in the analyses (mean age = 17.73 years SD = 0.52, 36.7 female and 63.3% male). A one-way between-group ANOVA with post hoc test was run to examine if there exists difference in SBPR among sportive events, taekwondo, football, basketball, short distance athletes. There were statistically significant difference observed in the $P < 0.05$ level in SBPR across the aforementioned events: $F(3, 26) = 4.94$, $P < 0.05$ with large effect size (0.36). Post-hoc comparisons using Scheffe test revealed that the average score for Box was significantly different ($M = 0.78$, $SD = 0.07$) from Football ($M = 0.93$, $SD = 0.1$). Whereas, there is no statistically significant difference exists among the rest of the events. On the other hand, from the non-exercise data, ECG report, it has been found that T-wave inversion, left ventricular hypertrophy, interventricular delay have been frequently reported among Athletics (33.3%), Foot Ball (30.3%), Basket Ball (12.1%), Taekwondo (6.1%) and Box (6.1%), respectively. It was concluded that cardiovascular risk symptom, especially a delayed decline in SBP during recovery, and abnormal ECG pattern were observed, especially among athletics, football, basketball, and taekwondo EYSA athletes.

Keywords: Cardiac risk symptom, ECG, Left ventricular hypertrophy, Systolic blood pressure ratio

BACKGROUND

Physical fitness if done regularly believed to contribute to general health and wellness.^[1] This is achieved usually through reducing the occurrence of some of the known risk factors like obesity, hypertension. It is recommended that regular exercise with optimum amount, is the crucial element for an athlete to excel in sport.^[1] Apart from this fact, exercise-related injury is more common phenomenon than exercise-induced sudden death. On both counts, two of them are catastrophic events for athlete. Phedipides- the young Greece Soldier, perhaps could be the first reported exercise-related death that was collapsed following a long journey from the battlefield.^[2] Unfortunately, exercise-related sudden death is not as common incident as

being caught by the common cold, though it is an emotive topic when it happens to an athlete in competition or training.^[2] Perhaps, this could partly explain being an athlete or fit is not guarantee and cannot prevent the occurrence two Ds' - Disease and Death. Numbers of risk factors have been frequently identified for athlete's unexpected death during the time of training or competition which is highly associated with physical exercise. To mention some, cardiac arrest, stroke, arrhythmias, and cardiomyopathy are the major once.^[2,7,14] Researches in this area evidenced that, some modalities of exercises has been frequently associated with maladaptive changes or modification to the anatomy and physiology of the heart muscle of the athletes.^[2] Subsequently, such changes usually may end up with pathology which may put the athletes' life in to risk. In sum, knowing latent conditions, characteristics and impact of different modalities of exercise on an ongoing basis found to be important to ensure safe participation.^[3] To this end, assessments of different kinds of parameters using, ECG, stress test, echocardiography, and so on are found to be

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relevant to determine the cardiovascular status of the athlete.^[2,3] Besides these tests, other tests can be used to identify who is in great or greater risk. One way of doing so is to determine systolic blood pressure ratio (SBPR).^[4]

Recovery SBPR is defined as the ratio of the SBP obtained in the 3rd min of the recovery period to either the peak-exercise SBP1 or the SBP in the 1st min 2 of the recovery period after graded exercise testing.^[4] It was first reported in the literature that, a delay in the decrease of SBP after exercise was more accurate than ST-segment depression in the diagnosis of coronary artery disease (CAD).^[4] The augmented value of the ratio is highly correlated with widespread coronary artery disease, in addition an adverse prognosis after myocardial infarction attack. Thus, this test provides valuable information in addition to the usual exercise stress test in the process of identifying high-risk ischemic disease. Three-minute SBPR greater than 0.90, is considered as abnormal and has been proven diagnostic accuracy of 75% of cardiac related diseases.^[4]

A report from one study which was done in the US confirmed that sudden death in young athletes often occurs on the athletic field and is associated with physical exertion, without prior symptoms. Undeniably, the incremental risk for sudden death in adolescents and young adults is significantly higher when associated with vigorous physical exertion during competitive sports. Exercise acts as a trigger for lethal ventricular tachyarrhythmias, given the susceptibility imposed by underlying (and usually unsuspected) cardiac disease.^[3]

This assures that, as it is already sated from the very outset, chronic physical exercise sometimes exacerbates or even precipitates the latent cardiac condition/s. Therefore, detailed cardiological assessment is crucial to identify who is at risk or greater risk. Despite this, no effort or little effort has been made in from the Ethiopian Youth Sports Academy (EYSA) in this regard. Conducting detail cardiological assessment of the athlete during the process of talent identification and admission is crucial. In fact, obtaining detailed cardiovascular and other indices is expensive and may not be practical in the current context. However, the current research by determining SBPR, it will be possible to detect who is at risk. This intern helps professionals to take adequate measures in order to avoid adverse events before they happen on the athlete. A delayed decline in SBP during recovery, according to researchers in the area, is associated with a greater likelihood of severe cardiomyopathy, which is the number one reason for exercise related death.

In conclusion, there have been only few studies such researches which were done on healthy or asymptomatic athlete population. Such an emotive topic ware also rarely studied in Ethiopia, especially in the youth centers or in the youth

groups. Associating the exercise related risk symptoms with different sport events, perhaps highlights the aforementioned problem and helps individuals who are closely working with the EYSA athletes to take caution before admission of the athlete into the academy, during planning or prescribing lists of exercises. These could perhaps minimize the risk of trauma that is frequently associated to exercise ultimately ensuring safe participation of our youngsters.

Research Questions

This research is aimed at answering the following research questions:

1. Is there any cardiac-related risk or risk symptoms that exist among the academy athletes?
2. Is there a significant difference in terms of cardiac-related risk symptoms among different sportive events of the EYSA athletes?
3. What would be a possible solution to alleviate if there are existing cardiac related risk symptom/s among the EYSA athletes?

Significance of the Study

Athletes are commonly viewed as individuals with exceptional physical health. However, each year there are reports of young athletes, without any overt symptoms of any disease, who collapse and die unexpectedly on the field or court during practices or exercises associated with their sport. The study was aimed at investigating/assess/exercise-related risks among different sport events among EYSA athletes. Therefore, identification of risk symptoms in ongoing basis and pre-event participation provides an opportunity to save lives prior to the occurrence of adverse events.

Delimitation of the Study

The study was delimited to EYSA athletes while only devoted to assess cardiac related risks or symptom/s and try to associate it with different events.

MATERIALS AND METHODS

Study Area

The study was conducted in EYSA which is found in Addis Ababa city, central Ethiopia. This academy was established in 2013. Currently, the academy train around 275 athletes in 9 different kinds of sport disciplines. The academy provides food, shelter, and medical services for these athletes. The study was conducted from April 2016 to April 2017.

Study Design

Quasi-experimental designs without a control group, specifically the one-group post-test-only design was employed to determine SBPR in response to sub-maximal graded exercise stress test.

Source Data

All EYSA different event athletes were considered as the source of the data.

Study Population

Athletes who are involved in different sporting events and volunteered to take part in the study were considered as participants of the study. All participants were recruited from EYSA.

Sample Size and Sampling Technique

A total of 30 athletes who participate in different sport events comprising both male and female subjects were considered for the study. Furthermore, all secondary data-ECG result has been taken to get a clearer picture of the case.

Sampling Procedure

Prior to selecting the actual samples, 4 sporting events were drawn using simple random sampling from nine sport disciplines. Thirty athletes were selected from 4 disciplines by using a simple random sampling technique, where all individuals were given an equal chance to be selected as study subjects. To this end, selecting the sample require a number of sample units from lists of all units, where this was obtained from the registration file Academy registrar. Finally, the lottery method was employed to select samples.

Inclusion and Exclusion Criteria

Inclusion criteria

A PAR- Q (Appendix-) was administered to insure participants had no underlying health problem. In addition, only participants who were willing to take part in the study were considered in the study.

Exclusion criteria

Participants who could not meet the inclusion criteria were excluded from the study.

Methods and Procedures of Data Collection

Measurement protocol

Seated BP and HR were measured in a quiet room 3 times after a 5 min rest with the average of the last 2 measurements. Height and weight values were measured with the participants in light examination clothes without shoes. Body mass index was defined as weight in kilograms divided by the square of height in meters. Basal metabolic rate was also measured Omeron body fat analyzer. Heart rate and percent oxygen saturation were continuously regulated throughout the exercise stress test and recovery period using polar heart rate monitor. Blood pressure was measured prior to exercise, after exercise, and during recovery by an experienced evaluator using the auscultatory method. A stethoscope and a calibrated sphygmomanometer were used. All measurements were performed using the right arm with the subject seated on a chair with back support.

Protocol of the Exercise Stress Test

The athletes underwent a standard submaximal graded exercise bicycle test according to the standard Bruce protocol with a Bike system (Quinton Inc., Bothell, WA). The participants exercised until the HR achieved was >85% of estimated maximal HR ($220 - \text{age}$) or till test termination criteria was achieved. The athlete continued to pedal while increasing the power output every 2 min. Rate of perceived exertion (RPE) and dispenia scale were checked at every stage of the stress test RPE was assessed using Borg's scale during vo_2 max testing session to determine the intensity of the exercise. This scale rates exercise intensity on a scale of 6 (very, very light) to 20 (very, very hard). Immediately after the stress test, during the recovery period, after which athletes were allowed to sit down SBP (1st and 3rd min) and HR were recorded.

Data Quality Control

To ensure data quality, high emphasis was given to data collecting instruments, therefore internationally accepted data collecting tools and instruments were used. In addition, qualified data collectors were participated in the data collection process.

Ethical Issues and Code of Conduct

Method of data analysis

Statistical analysis while continuous variables were expressed as mean and SD where as categorical variables were expressed as percentages. Mean comparison across different events was done using one way ANOVA. The results were summarized and presented using graphs and tables.

RESULTS AND DISCUSSION

The mean age of the participants is 17.73 and SD is 0.52. As can be seen from the table, the mean SBPR of the respondents is 0.85 and SD is 0.09. On the other hand, mean of partial oxygen saturation is 97.33 and SD is 1.12. The mean and SD of BMR of the athletes is 1398.63 kilo calories and 144.95 respectively. The average resting SBP is 110.23 mm Hg with SD of 19.63. One can also understand from table- that the 36.7% of the respondent were female and 63.3 were male [Table 1].

As it can be noted from Table 2, SBPR of 10 respondents was greater than or equal to 0.9. Whereas the rest of the respondents were below this value, thus they are considered as normal.

As noted in Table 3 One way between-group ANOVA with post-hock test ware performed to see if there exist difference in SBPR among different kinds of sportive events, World Taekwondo, Foot Ball, Box, Athletics/Short Distance/. There were statistically significant difference observed in the $P < 0.05$ level in SBPR across the aforementioned events: $F(3, 26) = 4.94$, $P < 0.05$ with large effect size (0.36). Post-hock comparisons using the Scheffe test, as it is indicated

Table 1: Mean, SD of SBPR, RSBP, SPO₂, BMR, RHR, height and weight across different sportive events, Taekwondo, Foot Ball, Box, Athletics/Short distance/of EYSA athletes, 2016/17 (*n*=30)

Descriptive Statistics					
Type of measure	<i>n</i>	Minimum	Maximum	Mean	Std. Deviation
SBPR	30	0.67	1.10	0.8510	0.09319
RSBP	30	70.00	190.00	110.2333	19.63052
SPO ₂	30	94.00	100.00	97.3333	1.12444
BMR	30	1112.00	1658.00	1398.6333	144.94886
RHR	30	50.00	89.00	63.3667	9.62211
WEIGHT	30	47.50	69.40	56.5100	5.34637
HEIGHT	30	1.54	1.88	1.6793	0.07688
AGE	30	16	18	17.73	0.521

Table 2: Descriptive statistics of SBPR using with frequency table across different sportive events, Taekwondo, Foot Ball, Box, Athletics/Short distance/of EYSA athletes, 2016/17 (*n*=30)

SBPR	Frequency	Percent	Cumulative Percent
0.67	1	3.3	3.3
0.69	1	3.3	6.7
0.71	1	3.3	10.0
0.75	1	3.3	13.3
0.77	1	3.3	16.7
0.79	3	10.0	26.7
0.80	2	6.7	33.3
0.82	2	6.7	40.0
0.83	1	3.3	43.3
0.85	4	13.3	56.7
0.86	3	10.0	66.7
0.90*	1	3.3	70.0
0.91*	1	3.3	73.3
0.92*	4	13.3	86.7
0.93*	1	3.3	90.0
1.00*	2	6.7	96.7
1.10*	1	3.3	100.0
Total	30	100.0	

SBPR>0.90* is considered as abnormal

Multivariate analysis revealed that, the mean score for Box was significantly different ($M = 0.78$, $SD = 0.07$) from Football ($M = 0.93$, $SD = 0.1$). Whereas, there is no statistically significant difference exist among the rest of the events.

Diagnosis of the EYSA athletes using ECG has exposed that majority/significant amount of them had already first degree

AV block, sinus bradycardia, left ventricular hypertrophy and T-wave abnormality/T-wave inversion/. Among these major cardiac problems T-wave inversion, AV block were frequently observed. Furthermore, most of the problems were not detected alone; rather they were cofound with other conditions. From the EKG result, for example, one can easily observe that one athlete could be suspected with number of diagnosis, Right Axis deviation, right bundle branch block, left ventricular hypertrophy simultaneously.

DISCUSSION

The current study was conducted to answer the following 3 research questions: is there any cardiac related risk or risk symptoms exist amongst the academy athletes? Is there significant difference in terms of cardiac related risks, symptoms among different sporting events of the EYSA athletes? What would be a possible solution to alleviate if there are existing cardiac related risk symptom/s among the EYSA athletes?

There are alarming increments of sudden death counts on trained athletes over the last several years especially in well developed nations United States, usually associated with exercise. Especially cardiac induced death during exercise and competition are becoming the most common one, even among technologically advanced society. Several methods have been used to alleviate the ever growing statistics of this problem. It is a well established fact that detail cardiological assessment prior to engaging oneself in one sportive event is mandatory so as to identify who is at risk or greater risk before. Despite this fact finding a stringent technique and diagnosing future risk is not an easy task and sometimes impossible and/or with lots of challenge. However, analyzing and selecting best diagnostic techniques with high accuracy is found to be important. Different techniques have been frequently used in

Table 3: Analysis of SBPR using one way ANOVA with post-hoc comparison (Scheffe) across different sportive events, Taekwondo, Foot Ball, Box, Athletics/Short Distance/of EYSA athletes, 2016/17 ($n=30$)

ANOVA						
SBPR		Sum of Squares	df	Mean Square	F	Sig.
Between Groups		0.091	3	0.030	4.944	0.008
Within Groups		0.160	26	0.006		
Total		0.252	29			
Multiple Comparisons one way ANOVA						
Scheffe	Sport	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Short distance	Taekwondo	-0.02000	0.04198	0.973	-0.1454	0.1054
	Foot Ball	-0.07286	0.04369	0.442	-0.2034	0.0577
	Box	0.07614	0.03870	0.299	-0.0395	0.1918
Taekwondo	Short distance	0.02000	0.04198	0.973	-0.1054	0.1454
	Foot Ball	-0.05286	0.04369	0.694	-0.1834	0.0777
	Box	0.09614	0.03870	0.131	-0.0195	0.2118
Foot ball	Short distance	0.07286	0.04369	0.442	-0.0577	0.2034
	Taekwondo	0.05286	0.04369	0.694	-0.0777	0.1834
	Box	0.14900*	0.04056	0.011*	0.0278	0.2702
Box	Short distance	-0.07614	0.03870	0.299	-0.1918	0.0395
	Taekwondo	-0.09614	0.03870	0.131	-0.2118	0.0195
	Foot ball	-0.14900*	0.04056	0.011*	-0.2702	-0.0278

*The mean difference is significant at the 0.05 level

clinical setting to diagnose the risk of disease. To mention some, ECG and EKG are the most frequently used one. On the other hand, determination of peak SBPR to 1st min SBP has also received a considerable attention in diagnosing risk of cardiovascular disease.

Accordingly, as it is clearly indicated in the findings that, there are signs and symptoms that shows cardiac related concerns among the EYSA athletes. As the ECG result has shown a significant amount of them had already first degree AV block, sinus bradycardia, left ventricular hypertrophy and T-wave abnormality/T-wave inversion/which is in line with literatures.^[2,3] Among these T- wave inversion, AV block was frequently observed among the EYSA athletes. Furthermore, most of the problems were not detected alone; rather they were found comorbid along with other conditions. From the ECG result, for example, one can easily observe that one athlete could be suspected with number of diagnoses, Right Axis deviation, right bundle branch block, left ventricular hypertrophy simultaneously. The current finding is also concurrent with the previous studies of course great deal of studies argues that these phenomena are adaptive in their nature and are common characteristics/feature of well trained athletes.^[3] In contrast, it has been recognized that elite level athlete apart from youth commonly develop abnormal ECG and benign atrial and ventricular ectopy^[2] the “athlete’s

heart” adaptations to long term, high-level exercise training traditionally have not been thought to predispose to serious arrhythmias, HF, myocardial infarction, or sudden cardiac death. However, recent data indicate that adverse cardiac remodeling induced by EEE can, among other issues, create an arrhythmogenic substrate.^[18,19]

Indeed, unrelenting endurance exercise like professional cycling and distances running precipitate different kinds of cardiac conditions and are often linked with atrial fibrillation,^[14] complex ventricular irregularities include ventricular tachycardia^[30] and sudden cardiac related death even in well fit person.^[2] However, these studies excludes the possibility ventricular arrhythmia which is induced by right ventricle dysfunction/arrhythmogenic right ventricular dysplasia/which solely attributed to prior myocardial injury due to chronic endurance exercise.^[22] It has been pointed-out that, progressive myocardial fibrosis developed as a result of the damaged part of cardiac tissue.^[2] This patchy myocardial tissue and scar formed due to this process induces electrical current re-entry and become a substrate for arrhythmia. Such exercises also disrupt homeostasis and responsible for the excessive release of catecholamine’s causing widespread vasoconstriction subsequent increased heart rate and diminished diastolic filling time.^[41] In athletes with already predisposing conditions, chronic endurance exercise will give hard time to the athlete’s

heart and unable to cope up the stress and the physiological demand placed on it, this rises right cardiac preload and afterload.^[20] The rise of these^[21] variables will initiate stretch and following chamber dilation in response to the hemodynamic variations. Chronic endurance exercisers result using cardiac magnetic resonance imaging and ECG has clearly depicted that Right heart dilation, hypokinesis, impaired diastolic function both RV and LV were the most common one.^[9,21]

Throughout the post-endurance exercise period, the cardiac geometric dimensions are returning and many athletes keep on this cycle with long distance exercise training, marathon running, momentary chamber rise, and consequently myocardial recuperation. With this recurring stretch of the chambers and return of the chamber geometry, some athletes may be prone to the progression of chronic structural transformation including dilation of the cardiac chambers and patchy myocardial scarring in response to the recurrent volume overload and extreme cardiac strain.^[22] More or less one in three finishers of a marathon, irrespective of baseline fitness level or the time it took to complete the race, will have a post-race spike and fall in cardiac troponin and BNP.^[23] It is logical to hypothesize that a subset of these athletes sooner or later go on to develop patchy cardiac fibrosis. These abnormalities are frequently without symptoms and perhaps accumulated over many years; and may predispose to severe arrhythmias and/or sudden cardiac death.

On the other hand, the SBPR following graded sub maximal exercise test 3 min to peak revealed that a significant number of athletes were shown a SBPR greater than or equal to 0.9 which is considered abnormal and pathological. Body of research has proved that, peak SBPR to 3rd min systolic pressure, which is greater or equal to 0.9 has been used as an excellent indicator of CAD, ischemic heart disease, and the occurrence of future hypertension and so on.^[4]

CONCLUSION

In conclusion, it has been frequently reported in different studies that, exercises that are very much related to endurance are not free from adverse cardiac events and are the number one reason for unsuspected sudden death among athletes during the course of training and competition. In the current study it was clearly found that significant numbers of EYSA athletes who were involved in different sportive events, Long Distance, Football, World Taekwondo and Box were showing abnormal response to exercise both in the 3 min - SBPR and non exercise ECG data. However, the researchers could not able to trace how and where the issue has started or got advanced or is abnormally normal or anything else. In this regard, careful diagnosis and understanding of the physiology and pathophysiology of athletes who involve in chronic endurance type, multi hours training, is life saving by minimizing the associated risk factors.

RECOMMENDATION

To avoid Exercise induced CV damage the following suggestions would be useful, especially when designing an exercise routine that will optimize health, fitness and prolonged existence with no adverse cardiovascular structural and electrical remodelling:

- To undergo through cardiovascular diagnosis of the athlete during the course of recruitment, training and when the athlete return following extended transition period
- Keep away from exhaustive strenuous exercise training every day for periods greater than 1 h continuously. An ideal target might be not more than 7 h weekly of cumulative strenuous endurance exercise^[5,6]
- When doing extreme endurance type training, take intermittent breaks (even for a few minutes at an easy pace, such slowing down to walk in the middle of a run). This provides the cardiac output return to normal temporarily, giving a ‘cardiac rest period’ while the chamber dimensions, blood pressure and pulse come down closer to baseline resting parameters before resuming strenuous exercise again^[40]
- Incorporate cross training using stretching, for example, yoga, and strength training into the weekly exercise routine. This confers multi-faceted fitness and reduces the burden of cardiac work compared to a routine of daily long-distance endurance exercise training.

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Research Article

Impact of fitness training on cardiovascular endurance among Bharathanatyam dancers

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ABSTRACT

Bharathanatyam (BH) dance practice promotes many physical and physiological aspects in the practitioners. Furthermore, dancers need to performed graceful presentations in the theatre setting. Therefore, additional fitness is essential for aesthetic performers. Hence, this study aimed to determine the impact of additional fitness on cardiovascular endurance among University level dance students. To achieve the purpose of the study, ninety ($n = 90$) female students from the Department of Dance, Ramanathan Academy of Fine Arts were selected as subjects. The mean age was 20–25 years. The selected subjects were medically and physically fit enough to undergo the training program. The subjects were selected by purposive sampling method each group contains thirty ($n = 30$) subjects. Group I, (Asana Running, $n = 30$, Practice Combined running and yoga asana practices, for 60 min/Session/3 days/week/12 weeks), Group II, (BH, $n = 30$, Regularly practice BH dance), Group III, ($n = 30$, Acted as control). The selected subjects were measured of their cardiovascular endurance by the Queens College Step Test before and after the training period. The differences between the initial and final scores of cardiovascular endurance were subjected to statistical treatment using t -test, the magnitude of improvement, analysis of variance, and Scheffe's *post hoc* test was used to find the pre and post-test data difference and confidence interval. From the result, it was concluded that the combined running and yogic practices group was significantly better than BH alone group and the control group on cardiovascular endurance. From the study, it is recommended that additional fitness training with yogic practice may improve cardiovascular fitness to achieve higher theatre demand without injury.

Keywords: Bharathanatyam, Cardiovascular endurance, Running, Yoga

INTRODUCTION

Bharatanatyam is the oldest Indian classical dance created by Bharatha sage that practice and performed at temples in Tamil Nadu early days. It has thrived in the temples and stages of southern India since ancient times (Williams 2004, Banerjee and tProjesh 1972).

Usually, nowadays Bharathanatyam (BH) dancers practice their dance in an aesthetic form. But the increasing physical demand and competition lead to injury and performance decrements in the theatre setting. The professional dancers presume and concentrate only on Bhava (expression), Ragam (music), Talam (tempo), which is only essential for effective

Theatre performance (Sabaanath and Thevanthy, 2015). But on the other hand, strong fitness foundations also need to succeed in the extended period of theatre performance. It means when dancers fatigue faster they are unable to perform the entire program successfully and sometimes they may lose body expression (Bhava). The BH dancers are practice and prepare culturally and anciently designed items and have not involved any additional training for performance enhancement (Sabaanath and Thevanthy, 2015).

Although many differences subsist between dance and athletic activity. Dancing is not a single act. It is a combination of many physical movements depending on a huge number of rudiments with direct and indirect effects on the body (Sabaanath and Thevanthy, 2015). Physical fitness may be defined as “the individuals’ ability to meet the demands of a specific physical task.” As in many sports, dancers fitness depends on the individuals’ ability to perform in aerobic

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(Sabaanant and Thevanthy, 2015; Cohen *et al.*, 1982) and anaerobic conditions, and on their capacity to develop high levels of muscle tension, i.e., muscle strength (Clarkson *et al.*, 1985, Fitt, 1982). Joint mobility/muscle flexibility (Van Gyn, 1986) and body composition (Hergenroeder *et al.*, 1993) are the essential fitness components for dancers. However, one single fitness parameter can not influence to succeed in dance, as they vary markedly depending on various factors including age, sex, and level of competition (Sabaanant and Thevanthy, 2015).

Cardiovascular endurance is the most important fitness quality needs for the dancers to perform without fatigue in the theatre sittings. Basically running exercise with 80% intensity is enough to handle the dancer's theatre demand. To start a fitness program and improve in running economy core strength is important to perform the high-level muscle work during the running activity. Although yoga is 5000 years ancient art which has highly sophisticated science behind the art. The non-impactful exercise has all types of fitness exercises.

Research Problem

At present BH dancers are lacking in fitness therefore they lose their theatre performance with early fatiguing. Also, feedback from the every final year students attached to the Department of Dance Ramanathan Academy of Fine Arts, University of Jaffna, Sri Lanka, Stated that they are unable to execute a high level of performance throughout the stage programme (approximately 60 min continues dance examination at the final year curriculum). Hence the need to overcome the fitness barrier by practicing additional fitness within their dancing theatre. Therefore, the present study was designed with asana as a core stability exercise and running exercise to overcome the issue.

Objective of the Study

The objective of the study was to find out the effect of additional fitness on cardiovascular endurance.

METHODOLOGY

To achieve the purpose of the study, ninety ($n=90$) female students from the Department of Dance, Ramanathan Academy of Fine Arts were selected as subjects. The mean age was 20–25 years. The selected subjects were medically and physically fit enough to undergo the training programme. The subjects were selected by purposive sampling method each group contains thirty ($n=30$)

subjects. Group I, (Asana Running, $n=30$, Practice Combined running and yoga asana practices, for 60 min/Session/3 days/week/12 weeks), Group II, (BH, $n=30$, Regularly practice BH dance), Group III, ($n=30$, Acted as control). The selected subjects were measured of their cardiovascular endurance by the Queens College Step Test (Davis *et al.*, 2000) before and after the training period. The differences between the initial and final scores of cardiovascular endurance were subjected to statistical treatment using 't' test, the magnitude of improvement, analysis of variance, and Scheffe's *post hoc* test was used to find the pre and post-test data difference and confidence interval.

Training Protocole

Group-I followed above mention training and apart from that they practice following asanas before the running activity (Navasana, Vasisthasana, Virabdrasana, Ustrasana, Urdhva Parasrita Padotanasana, Uttanpadasana, Kumbhakasana)

RESULTS AND DISCUSSION

Table 1 shows the mean values of pre and post-tests of cardiovascular endurance of the three groups. The obtained "t" value of Groups I, II, and III are 17.05, 10.23, and 6.18 respectively. The result of the "t" shows, the significant difference between pre and post-test on cardiovascular endurance among all the groups respectively. The magnitude of increase in cardiovascular endurance of the three groups (I, II, III) is 18.75, 12.72, and 12.13 respectively. From the results, it was very clear that all three experimental groups were significantly improved cardiovascular endurance. Hence it was concluded that combined asana and running exercise highly influence cardiovascular endurance among BH dancers.

Table 2 shows, the mean gain values of cardiovascular endurance of three groups (I, II, III) are 8.73, 5.60, and 5.46 respectively. The obtained "F" ratio of 7.63 for means was higher than the table value of 3.10 for df 2 and 87 required of significance at 0.05 level.

The result of the study on cardiovascular endurance indicates that there was a significant difference among the groups (I, II, III). To determine which of the mean gains had a significant difference, Scheffe's *post hoc* test was applied and the results were presented in Table 3.

Training weeks and intensity	0–2 weeks	2–4 weeks	4–6 weeks	6–8 weeks	8–10 weeks	10–12
	60% intensity	65% intensity	70% intensity	75% intensity	80% intensity	Weeks 85% intensity
Group I Running	60 s	70 s	80 s	100 s	110 s	120 s
	Running/3 min recovery/7 sets	Running/3 min recovery/8 sets	Running/3 min recovery/8 sets	Running/3 min recovery/7 sets	Running/3 min recovery/7 sets	Running/3 min recovery/6 sets
Group II Regular Bharathanatyam practice						

Table 1: “t” values of experimental groups and magnitude of improvement on cardiovascular endurance (ml/kg/min)

Groups	Pre-test	Post-test	r	“t”	Magnitude of improvement in %
Group I					
\bar{x}	46.23	54.90	0.18	17.05*	18.75
σ	2.07	2.30			
Group II					
\bar{x}	44.11	49.72	0.09	10.23*	12.72
σ	1.70	2.63			
Group III					
Control Group					
\bar{x}	45.02	50.48	0.36	6.18*	12.13
σ	1.63	4.00			

*Significant at 0.05 level of confidence. with df (2, 29) is 2.04

Table 2: Analysis of variance for mean gain on cardiovascular endurance of experimental and control group

	Groups			SOV	S.S	df	MS	“F” value
	Gr I	Gr II	Gr III					
Mean	8.73	5.60	5.46	B	205.10	2	102.55	7.63*
S.D	2.80	3.0	4.84	W	1169.34	87	13.44	

TV: 0.05 df 2 and 87=3.10

The Table 3 shows, the mean gain difference in Cardiovascular Endurance Among Group I, II, III are 3.13, 3.27, and 0.14 respectively, and greater than the confidence interval value 2.22.

DISCUSSION

A major objective of physical educators, dance instructors, fitness programmer, personal trainers, and coaches is to prepare the most effective and advanced individualized conditioning or training programs for their clients/students. The principles underlying the development of cardiovascular endurance will stress the relationship between the particular dance activities which improves the primary energy source(s) involved. Therefore the present study included training packages such as running and asana exercise intentionally improve core stability (Asana) and cardiovascular system by running exercise. The purpose of selecting asanas is to improve core strength and flexibility to enhance postural muscle strength which is essential for enhancing cardiovascular endurance.

By recognizing the energy sources are being employed to the greatest extent during a given activity and will be able to prescribe the most effective conditioning regimen is important

for trainers. These regimens are sometimes referred to as intensity and duration-based training programs. Because the training was intentionally designed to improve the isometric strength and cardiovascular endurance. The purpose of the asana training was to improve the basic isometric strength which essential and fundamental requirement for all strenuous physical activity. And core strength is also developed by asana that is a prerequisite for improving cardiovascular performance.

Exercise science researchers strongly believe that regular additional fitness training with dancing practice may help to maintain a strong and healthy heart. A physically fit heart pumps more blood with lower beats at rest. As a benefit of regular fitness program promotes the individual's muscles utilize oxygen is increased substantially. In BH dance, endurance ensures the optimum speed of motor actions even in the latter part of the dancing act. The ability to maintain the pace or tempo of dance during a theater setting is impossible without an adequate level of endurance. Hence the present study included an additional running exercise to improve physical performance.

Another limitation for this study was to apply running exercise out of the dancing theatre is not permitted and the running exercise is designed within the dancing theatre settings. Hence the training protocol is very suitable for all the dancers to easily accommodate within their training schedule.

If any training program to be effective must develop not only the exact energy system involved, but it must also develop the specific muscle groups as well as the specific movement patterns involved in the dancing activity. The present experiment also included an activity that is related to BH dance. The general principles of training such as specificity and overload are applied in the training program (intensity, volume). Also included additional asana (core strength) practice to enhance the dancers'

Table 3: Scheffe's *post hoc* test for the differences between the mean gains of cardiovascular endurance

Group I (Asana Running)	Group I (Bharathanatyam)	Control Group	MGD	CI
8.73	5.60		3.13*	
8.73		5.46	3.27*	2.22
	5.60	5.46	0.14	

*Significant at 0.05 level of confidence

antigravity muscle strength which is essential to improve cardiovascular endurance.

Aerobic endurance can be developed by prolonging the duration of continuous exercise. It is generally agreed among coaches, fitness trainers, exercise physiologists, and researchers. The work efforts longer than 2 min do not really overload the lactic acid, anaerobic system, but instead, it starts to rely more upon the aerobic system. Evidence shows that highly trained individuals are generally able to tolerate significantly higher lactate levels than untrained subjects. It is obvious that because in the development of the lactic acid energy system, even if the long and complete recovery may not be possible during theatre setting. The levels of lactic acid may be so high and the time for recovery may not be sufficient between two dancing items. Therefore, to avoid the possibility of fatigue interfering with the dancing act, the high aerobic intensity exercise with low recovery-based conditioning is also included in the training session. Hence the improvement in cardiovascular endurance positively influences theatre performance without a doubt.

CONCLUSION

From the result, it was concluded that the combined asana and running exercise positively influence cardiovascular endurance among BH dancers.

RECOMMENDATION

A combination of any form of core exercise and running exercise within theatre settings is more than enough to overcome the physical physiological demand of the performance of the BH dancers.

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Research Article

Effects of combination therapies on disabled athletes' recovery

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ABSTRACT

Aim: The aim of this unique study is to investigate the effects of combining six recovery strategies (Active training, stretching, cold water immersion Jazcuzzi, sauna, massage, and high intensive laser treatment) on rank of motion and muscle soreness scale following fatiguing exercise in disabled athletes. The effects of these six recovery strategies on performance and perceptual recovery to the authors' knowledge have not been investigated on Vietnamese disabled athletes. **Methods:** Seven elite disabled athletes participated in the study, consists of four males and three females. Four athletes from para powerlifting and three athletes from para field throwing as volunteers join this study for 8 weeks. **Results:** For shoulder ROM, there was significant difference from baseline to 8 weeks, which means that recovery benefits could have a positive impact to the shoulder function, to make it more flexible. The recovery program resulted in a 100% decrease in the severity of soreness compared to before experiment. **Conclusion:** In summary, using the developed recovery program, we found reductions in muscle soreness and more flexible shoulder ROM. Our findings suggest that a combination of restorative benefits, used appropriately, is beneficial in reducing muscle soreness and reconstructing shoulder function. Para athletes and coaches who applied a recovery program should be aware that they had expected positive effects.

Keywords: Disabled athlete, Muscle soreness, Para athlete, Recovery, Rehabilitation, ROM

INTRODUCTION

Exercise therapy, massage, sauna, and other physical therapies are therapeutic modality in particular treatment or common daily life as recovery methods and it is a long tradition of use in sport. Elite athletes apply a variety of methods^[1,2] with the intention of speeding their recovery.^[3] Other levels of athlete or junior athletes have also been shown their different recovery strategies post-exercise,^[4] potentially to decrease soreness and improve subsequent performance. The efficacy of recovery strategies has been reported in the previous studies and also in practical sport applications, with some strategies being used without clearly evidence.^[3,5,6]

Frequent results made in the sports science articles for the benefits of those include stretching of tendons, connective tissue,^[7] and relief of muscle tension and spasm.^[8,9] They are also commonly assumed to reconstruct muscle recovery from intense exercise, principally because it speeds up muscle blood flow, range of

motion which may lead to the acceleration in the decrease in interstitial creatine kinas or even in mental relax was reported.^[10]

An active training (ACT) recovery is a simple and useful technique that involves completing low-intensity exercise after primarily exercises, and has been consider to increase blood flow and range of motion which may lead to the velocity in the decrease in interstitial creatine kinase. ACT recovery may also allow reoxygenation of blood thorough increased alveolar gas exchange as a consequence of elevated metabolism compared to passive recovery strategies.^[11]

Number of prior studies are suggested that both cold water immersion (CWI) and contrast water therapy (CWT) may an effective recovery following exercise and sport.^[3,5,6] Other recent reviews have shown CWI to reduce delayed onset muscle soreness^[12] and fatigue.^[13] Besides, there was found CWT not better than CWI, warm water immersion, ACT, and stretching, although better than passive rest.^[2] In addition, there was found that CWI, ACT, and stretching were inconsistent in gain strength or reduce muscle soreness.^[14]

Recently, researchers have shown that phototherapy administered to skeletal muscle immediately before resistance

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Table 1: The characteristics of participants

	Age	IPC code	Classification and Description	Weight class
Para Powerlifting (<i>n</i> =4)				
CT01	36	F54	Para powerlifting	49 kg - Male
CT02	36	F55	F51-57: Limb deficiency, leg length difference,	54 kg - Male
CT03	38	F56	impaired muscle power, or impaired range of	50 kg - Female
CT04	31	F57	movement	55 kg - Female
Para Javelin Throwing (<i>n</i> =3)				
NL01	31	F57	Discipline: Seated throws. F51-57: Limb deficiency,	Male
NL02	36	F57	leg length difference, impaired muscle power, or	Female
			impaired range of movement	
NL03	31	F40	Standing height and limb length are reduced due to	Male
			conditions such as achondroplasia and osteogenesis	
			imperfect. Max Standing Height≤130 cm; Max Arm	
			Length≤59 cm; Sum of Standing Height and Longest	
			Arm Length≤180 cm	

exercise can enhance contractile function, prevent exercise-induced cell damage, and improve post-exercise recovery of strength and function.^[15] The further reaffirms the postulated metabolic stimulation effects of high intensity laser treatment (HILT).^[16]

The purpose of this unique study is to investigate the effects of six recovery strategies (ACT, stretching, CWI, sauna, massage, and HILT) on rank of motion and muscle soreness scale following fatiguing exercise in disabled athletes. The effects of these six recovery strategies on performance and perceptual recovery to the authors' knowledge have not been investigated on Vietnamese disabled athletes. The findings from this investigation may provide athletes and coaches with more detail information to assist with informed decision making their training program and recovery choices.

METHODS

Seven elite disabled athletes participated in the study consist of four males and three females. Four athletes from para powerlifting and three athletes from para field throwing as volunteers join this study for 8 weeks. Participants were informed of the procedures to be undertaken and provided written informed consent before participation and following the Helsinki ethics declaration. The characteristics of participant are as follows:

Athletes were instructed to abstain from exercise and alcohol 24 h before the testing. At the start of each testing session, participants were assessed body fat skinfold to determine the body fat percentage based on biceps, triceps, subscapular, and suprailiac skinfolds. The body composition was calculated following the Durnin and Womersley equation.^[17] Then, they were measured the range of motion of both right and left

shoulder joint (ROM) according to the American Academy of Orthopaedic Surgeons criteria.^[18] The visual analog scale (VAS) was applied to determine the muscle soreness, using a 100-mm VAS on which zero indicated *no soreness* and ten represented *extreme sore*.^[19]

After daily training, athletes were employed recovery: ACT recovery and stretching exercises from 15 to 20 min. There are 13 exercises for para powerlifting athletes and 15 exercises for para field throwing athletes. The variables of these exercises were on Table 2. The sport massage was taken 30 min 3 times/week by therapy technicians. Dry sauna and wet sauna were set at 45–50°C for 10 min each and CWI Jacuzzi Wasset at 15–20°C for 15 min, for those scheduled twice per week. The HILT (iLux XP-30W made in Italia) was used twice weekly recommended by the World Association of Laser Therapy with biostimulation at 20W for 8 min per spot and reduce pain at 16W for 8 min each point.

The experiment was organized during the competition preparation period with duration of 8 weeks. Recovery benefits have been scheduled as follows:

Statistical Analysis

All data were analyzed using descriptive statistics. The percentage of change before and after experiment was calculated and t-student with 1-tails was made at $P < 0.05$. The software used for data processing and analysis was Excel (Microsoft Office 2010).

RESULTS

The experiment duration was 8 weeks; athletes were estimated before and after applying recovery methods. The results were

Table 2: The parameters of the active recovery and stretching exercise

Exercise		Reps	Set	Time (s)	Rest (s)	Total time (s)
General						
BT1	Single arm pec major Stretch	1	2 sides	30	15	60
BT2	Rhomboid Stretch	1	2 sides	30	15	60
BT3	Upper trap stretch	1	2 sides	30	15	60
BT4	Abduction deltoid stretch with assistant	1	2 sides	30	15	60
BT5	Internal rotation with assistant	1	2 sides	30	15	60
BT6	Back ward extension with assistant	1	2 sides	30	15	60
BT7	Isometric constant shoulder and elbow and rotating motion		1	15		15
BT8	Isometric high rows (10 kg)		1	15		15
BT9	Seated single arm isometric waiter hold (5 kg)	3	1	10	15	30
BT10	Supine single arm isometric db shoulder retraction (5 kg)	3	1	10	15	30
Para powerlifting						
CT1	Active exercise with bench press 20kg	5	3	10	30	30
CT2	Supine arms db shoulder retraction 3 kg (two sides)	10	3	10	30	30
CT3	Vibration arms multi-dimensions		2	10	15	30
Para Javelin throwing						
NL1	Javerlin technique throwing without resistance (70% maximal)	5	2	10	15	30
NL2	Javerlin technique throwing with rope resistance (50% maximal)	5	2	10	15	30
NL3	Sit and reach	2	1	30	15	60
NL4	Sit and reach with open legs	2	1	30	15	60
NL5	Stand and reach	2	1	30	15	60

as follows:

Regarding the active ROM in Table 4, the mean was slightly below AAOS criteria in both arm flexion and arm abduction, although the participants had functional mobility and indicating an increase in ROM after experiment. The left external rotation also was narrow comparing to the data AAOS. All athletes were greater the data AAOS in arm extension and internal rotation, and slightly higher in the right external rotation. The most of the parameters were increased significantly except for the right and left external rotation. The highest elevated was found in the right extension (3.23%) and the left internal rotation (3.33%) and others ranging from 1.18% to 2.7%. There were a different characteristics between two teams; the throwers have more flexible shoulders than powerlifters. The daily training and technique structure can affect to their shoulders. For shoulder ROM, there were significant differences from baseline to 8 weeks, which means that recovery benefit could have a positive impact to the shoulder function, to make it more flexible.

The results of the survey on muscle soreness in Table 5 show that the athletes feel good after the experiment. VAS scores dropped in all athletes, muscle soreness was gone. About 85.71% of athletes reported mild pain and 14.29% moderate muscle pain before the experience, and their sensations were quite variable after applying the rehab benefits. The most of them feel good (no

pain) and only one person still feels mild pain. In summary, an 8-week rehab program has appreciated benefits for para athletes to improve their shoulder function and reduce muscle soreness.

DISCUSSION

Our investigated the effects of recovery program includes ACT, stretching, massage, sauna, CWI jazzuzzi, and HILT on para athletes. We used a self-report VAS to quantify the magnitude of muscle soreness for the upper quadrant body; this scale has been reported to be the most satisfactory means of assessing pain sensation.^[21] Because the perception of pain is highly subjective and varies widely among individuals, the use of soreness as a quantifier of muscle injury is problematic.^[22]

Practically, people expect to have some effects of recovery methods when they receive it, and psychological effects may always exist to some degree.

Muscle soreness developed after training section. Peak soreness for the upper quadrant body, palpation of the gleno humeral joint, neck and shoulder, and elbow joint. This suggests that the reduction in muscle soreness or delayed on muscle soreness for the rehab condition was a real practically. Moreover, the changes in ROM and muscle soreness immediately after

Table 3: Schedule of experiment

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Week 1-4					
CT 1-3	CT 1-3	CT 1-3	CT 1-3	CT 1-3	CT 1-3
NL 1-5	NL 1-5	NL 1-5	NL 1-5	NL 1-5	NL 1-5
BT 1-10	BT 1-10	BT 1-10	BT 1-10	BT 1-10	BT 1-10
Massage		Massage			Massage
	Sauna				Sauna
	CWI Jacuzzi				CWI jacuzzi
			HILT	HILT	
Week 4-8					
CT 1-3	CT 1-3	CT 1-3	CT 1-3	CT 1-3	CT 1-3
NL 1-5	NL 1-5	NL 1-5	NL 1-5	NL 1-5	NL 1-5
BT 1-10	BT 1-10	BT 1-10	BT 1-10	BT 1-10	BT 1-10
Massage			Massage		Massage
	Sauna				Sauna
	CWI jacuzzi				CWI jacuzzi
		HILT		HILT	

Table 4: Changes of shoulder ROM after experiment (n=7)

ROM	AAOS	Prior		Post		W%	P-value
		Mean	SD	Mean	SD		
Right flexion	180	172.7	2.0	177.4	2.5	1.35	0.01
Left flexion	180	167.9	1.5	172.6	2.1	1.38	0.02
Right extension	60	62.0	2.1	66.1	1.5	3.23	0.03
Left extension	60	61.3	2.1	66.0	2.5	3.70	0.00
Right abduction	180	173.7	3.1	177.9	3.1	1.18	0.05
Left abduction	180	170.0	1.5	174.7	2.0	1.37	0.04
Right internal rotation	70	72.0	1.5	76.0	2.1	2.70	0.05
Left internal rotation	70	69.1	2.6	73.9	2.9	3.30	0.05
Right external rotation	90	89.0	1.5	93.4	2.1	2.43	0.17
Left external rotation	90	83.0	1.7	87.3	1.5	2.52	0.18

Table 5: Muscle soreness level after experiment (n=7)

	Prior				Post			
	VAS score	Moderate	Mild	No pain	VAS score	Moderate	Mild	No pain
Para powerlifting (n=4)								
CT01	6	x			4		x	
CT02	4		X		0			x
CT03	4		X		0			x
CT04	4		X		0			x
Para Javelin Throwing (n=3)								
NL01	4		X		0			x
NL02	4		X		0			x
NL03	4		X		0			x
Total (n=7)	14.29% moderate				14.29% mild			
	85.71% mild				85.71% no pain			

training can be seen clearly. The DOM will be developed if there is no intervention. Athletes and coaches need to be received a recovery program or multi-rehab choices.

It seems unlikely that the changes in the criterion measures were altered by the physical effects of rehab benefits. These methods were effective in reducing muscle soreness and shoulder ROM more flexible. The recovery program resulted in a 100% decrease in the severity of soreness compared to before experiment. The reasonable to assume that differences between before and after experiment, if any, were due to the effects of recovery program.

CONCLUSION

In summary, using the developed recovery program, we found reductions in muscle soreness and more flexible shoulder ROM. Our findings suggest that a combination of restorative benefits, used appropriately, is beneficial in reducing muscle soreness and reconstructing shoulder function. Para athletes and coaches who applied a recovery program should be aware that they had expected positive effects.

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Research Article

Comparison of reaction time among the volleyball players and basketball players

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ABSTRACT

The purpose of the study was to find the differences, if any, in the mean reaction time among the volleyball players and the basketball players participating regularly in the inter-collegiate tournaments. Thirty volleyball players and thirty basketball players were considered as the respond for the study. To study the difference in the various reaction times among the volleyball players and basketball players, “t”-test for equality of income was used. The mean standard deviation and the respective *t*-values were tabulated for each auditory and visual reaction time. The reaction time was characteristic by six variables Audio - Right, Audio - Left, Red - Right, Green - Right, and Green - Left. Of the six variables considered in the reaction time of the players, none of them found to be significant since the calculated “t”- value was less than the tabulated “t”- value, that is, there was no significant difference in mean reaction time among the volleyball players and the basketball players as 5% level of significance. Statistical techniques to investigate the difference in the mean reaction time among the volleyball players and basketball players “t” test for equality of means were used. Result: It was attributed from the fact that there was no significant difference in the mean reaction time among basketball players and volleyball players. It could be considered that these two games are small area ball games and require similar performance abilities to execute the skills, in various game situations. It may be due to this fact; there exists no significant mean reaction time among volleyball players and basketball players.

Keywords: Reaction time, Volley ball, Basketball

INTRODUCTION

High sports performance is not merely the product of physical, psychic, and physiological prerequisites possessed by an individual sportsman high performance is achieved after prolonged periods of training supported directly or indirectly by the society. Therefore, high performance should also be considered as an expression of social will and efficiency. It is now an accepted fact in the performance sports that a society which activity and consciously supports the training and competition system is able to win more medals in international competitions example Olympic Games.

The reaction time is of great important in the field of sports. Fast reactions are characteristics of great athletes in the high level sports performance. The champion sprinter with races set world records by the small fraction of seconds. In a contest

where race and event are won be a fraction of a second, reaction time becomes the most significant the sprinter who can react to the sound of the starters pistol slightly faster than his opponent, has a considerable advantage in an event which may last less than 10 s reaction time becomes more important as all athlete is said to possess fast reactions, that is, he is able to more quickly and accurately is a highly skilled act.^[1]

In sports and games in which movements of a player are conditioned by signals, Movements of the opponent reaction and the motion of attack time are of great important. The most of the competitions involve a high degree of reaction time. A participant will have to execute certain movements which include rapidly and effectively changing directions of movement and often unexpectedly. Hence, in addition to the physical fitness components such as speed, agility, and flexibility are also essential. Unless, there is power and a good degree of reaction time if may not be possible for time to respond to a particular situation perfectly. Precisely, the whole phenomenon involves coordination. The term coordination implies skill and reaction time.^[2]

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DELIMITATIONS

- The study was conducted on thirty volleyball and thirty basketball players
- The study was conducted on inter-collegiate level of volleyball and basketball players
- This study was conducted for men players who were regularly practicing in their respective games
- The study was further delimited to reaction time only.

HYPOTHESIS

- There is a significance mean difference in the reaction time among the volleyball and the basketball players.

SIGNIFICANCE OF THE PROBLEMS

- It is often mentioned that fast reactions are needed for better performance in games and sports
- The study will be of immense help the scholars to understand better about the need of quick reaction time and try to develop their game better
- The speed with which the individual can react in a competitive situation is of great interest to those concerned with athletic performance
- This study may provide guidance to coaches to prepare a well balanced team which fulfills the demands of all the departments of the game.

PROCEDURE OF TESTS: REACTION TIME

Test Procedure

Chronoscope time indicator was fixed with the help of the stop watch. The switches were put on that were connected, with light and sound. Subject was asked to sit near the keys meant for him. The subject was shown the key connected with light and the key connected with sound.

Visual Stimulus

With the above arrangements, the author instructed the subjects to react with respect to light and sound. The researcher demonstrated the procedure of the test and recorded the reaction time for light and sound. The procedure was as follows. The researcher instructed the “S” as follows. I am interested in the speed with which you could react to the appearance of light; the light will always appear in the same place. When I say ready, place your index finger on the telegraphic key and as soon as you see the light, you must withdraw your index finger from the key, but you must not withdraw your index finger before you see the light. Moreover, you must not keep your index finger on the key again until the trial was repeated. In this way, the subject gives ten numbers of repetitions. The stimulus response was recorded by the recording of the chronoscope for each subject on each trial.

Sound Stimulus

The procedure was similar to that of visual stimulus, where instead of seeing the light, hearing the buzzer sound the subject had to withdraw his index finger and the experiment was repeated again for 10 times and the stimulus response was recorded by the readings of the chronoscope.^[3]

STATISTICAL ANALYSIS AND INTERPRETATION

The purpose of the study was to find the differences, if any, in the mean reaction time among the volleyball players and the basketball players participating regularly in the inter-collegiate tournaments. Thirty volleyball players and thirty basketball players were considered as the respond for the study. To study the difference in the various reaction times among the volleyball players and basketball players, “*t*”-test for equality of income was used. The mean standard deviation and the respective *t*-values were tabulated for each auditory and visual reaction time as shown in Table 1.

Table 1: Descriptive statistics and “*t*” values

Characteristics of reaction time	Basketball players		Volleyball players		“ <i>t</i> ” value
	Mean 1/1000 sec	SD 1/1000 sec	Mean 1/1000 sec	SD 1/1000 Sec	
Audio-right	1059.0333	231.8926	1008.8667	180.2163	0.936
Audio-left	1052.4333	130.6447	1127.8667	205.9388	-1.0694
Visual red right	1101.6000	140.0989	1080.4667	210.5737	0.458
Visual red left	1133.2333	205.6310	1175.3667	218.0104	0.770
Visual green right	1052.9667	192.5478	1198.5667	261.4415	-1.906
Visual green left	1082.000	218.5275	1198.5667	261.4415	-1.906

Tabular “*t*” value with 58 d.f. or 5% level = 2.00, SD: Standard deviation

Null Hypothesis

There was no difference in mean reaction time among the basketball players and volleyball players.

Alternative Hypothesis

There was a difference in mean reaction time among the basketball players and the volleyball players.

The reaction time was characteristic by six variables Audio - Right, Audio - Left, Red - Right, Green - Right, and Green - Left.

Of the six variables considered in the reaction time of the players, none of them found to be significant since the calculated “*t*”-value was less than the tabulated “*t*”-value, that is, there was no significant difference in mean reaction time among the volleyball players and the basketball players as 5% level of significance.

CONCLUSION

It was attributed from the fact that there is no significant difference in the mean reaction time among basketball and volleyball players, it could be considered that these two games are small area ball games, and requires similar performance abilities to execute the skills. In various game situations, it may be due to this fact; there exists no significant mean reaction time among volleyball and basketball players.

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Research Article

Effect of different packages of yogic practices with roasted garlic intake on plasma glucose, self-esteem and cortisol variables among men

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ABSTRACT

Instruction: The purpose of the study was to find out the effect of different packages of yogic practices on plasma glucose, self-esteem, and cortisol variables among men. **Selection of Variables:** The following variables were selected. **I. Dependent Variables:** Plasma glucose, self-esteem, and cortisol. **II. Independent Variables:** Experimental group I - Roasted garlic, Experimental group II - Roasted garlic with yogic package and control group. **Selection of Subjects:** Forty-five overweight middle aged men were randomly selected as subjects from Chennai. The subject's age ranged between 40 and 50 years. The subjects were randomly divided into three groups such as experimental group I, experimental group II, and control group and each group contains 15 subjects. **Experimental Design:** The study was formulated as a true random group design consisting of a pre-test and post-test. The middle aged overweight men ($n = 45$) were randomly assigned to three equal groups of 15 each. The groups were assigned as experimental group - I (Yogic practices), experimental group - II (Yogic practices with roasted garlic), and control group, respectively. Pre- and post-tests were conducted for all the 45 subjects on selected lipid profile status, physiological, and psychological variables before and after the experimental period of 12 weeks. The two experimental groups were treated with their respective yogic program for 1 hour per day for 5 days a week for a period of 12 weeks. **Statistical Procedure:** Analysis of co-variance statistical technique was used to test the adjusted post-test mean differences among the experimental groups and control group. If the adjusted post-test result was significant, then the Scheffe's *post hoc* test was used to determine the significance of the paired mean differences (Thirumalaisamy, 1998). **Conclusions:** It was concluded that the plasma glucose and cortisol has significantly decreased and self-esteem has significantly increased due to the influence of 12 weeks practice of different packages of yogic practices with roasted garlic intake among men compared to the control group.

Keywords: Plasma glucose, Self-esteem, Yogic practices

HEALTH BENEFITS OF GARLIC

Garlic has the unique ability to add great taste and flavor to any dish. Along with playing the role of increasing the flavor profile of a dish, garlic also comes with numerous health benefits. It is widely used for several conditions linked to the blood system and heart, including atherosclerosis (hardening of the arteries), high cholesterol, heart attack, coronary heart disease, and hypertension.

1. Roasting garlic concentrates the sugars, transforming it into a caramelized, spreadable, buttery texture, with

sweet, deep complex flavors, removing all the sharpness, pungency, and bite

2. It is easier to digest for many people
3. It gives sweetness and depth to the dishes you are already making-soups stews, mashes, dressings, marinades, and sauces
4. It is a great way to preserve garlic
5. Because it smells amazing and will make you and your family feel cozy and happy.

MEANING OF YOGA

Yoga is the "Union of the individual self with the universal self" (Iyengar, 2001). Yoga means the union or communication or unity with our inner being. "Asana" means

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a state of being in which we can remain steady, calm, quiet, and comfortable with our physical body and mind. (1) Yoga improves strength, balance, and flexibility. (2) Yoga helps with back pain relief. (3) Yoga can ease arthritis symptoms. (4) Yoga benefits heart health. (5) Yoga relaxes you, to help you sleep better. (6) Yoga can mean more energy and brighter moods. (7) Yoga helps you manage stress. (8) Yoga connects you with a supportive community. And (9) Yoga promotes better self-care.

BENEFITS OF YOGIC PRACTICES

Many world class sportsmen have found that the practice of yoga helps them to achieve greater skills in their sports. This is because yoga not only works on the physical level but also has benefits for the mental, emotional, and energy levels. It enables them to realize that “winning is not everything” and that there is “more to life” than sporting “high” and “lows.”

1. Yoga helps to develop all system of human body such as cardiovascular, respiratory, digestive, excretory, endocrine, nervous, and muscle-skeletal system thus strengthening, cleansing, and purifying the body so that it is brought under our conscious will.
2. Yoga reduces anxiety, aggression, tension, ego weakness, guilt feelings, and frustration. It brings complete changes in body and mind so that the practitioner feels fresh remarkably, relaxed, and full of vitality.
3. Lung functions can be improved as a result of yogic exercise. Yoga is also useful for improving the breath holding time.

STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effect of different packages of yogic practices with garlic intake on plasma glucose, self-esteem, and cortisol variables among men.

SELECTION OF VARIABLES

The following variables were selected. (1) Dependent Variables: Plasma glucose, self-esteem, and cortisol and (2) Independent Variables - 1. Experimental group I - Yogic package and 2. Experimental group II - Yogic package with roasted garlic intake

Group III - Control group

EXPERIMENTAL DESIGN

The study was formulated as a true random group design consisting of a pre-test and post-test. The middle aged

overweight men ($n = 45$) were randomly assigned to three equal groups of 15 each. The groups were assigned as experimental group - I (Yogic practices yogic package), experimental group - II (Yogic practices with roasted garlic), and control group, respectively. Pre- and post-tests were conducted for all the 45 subjects on plasma glucose, self-esteem, and cortisol variables before and after the experimental period of 12 weeks. The two experimental groups were treated with their respective yogic program for 1 hour per day for 5 days a week for a period of 12 weeks.

STATISTICAL PROCEDURE

Analysis of covariance statistical technique was used to test the adjusted post-test mean differences among the experimental groups and control group. If the adjusted post test result was significant, then the Scheffe's *post hoc* test was used to determine the significance of the paired mean differences (Thirumalaisamy, 1998) [Table 1 and Figure 1].

DISCUSSION ON THE FINDINGS OF PLASMA GLUCOSE

From these analyzes, it was found that the results obtained from the experimental groups had significant decreases in the plasma glucose from it higher level to moderate when compared with one from the control group. This was due to the influence of different packages of yogic practices with roasted garlic intake in the analysis of experimental groups. It was interesting to note that the results obtained from experimental group II had more significant effect than experimental group I and control group on the decreased plasma glucose [Table 2 and Figure 2].

DISCUSSION ON THE FINDINGS OF SELF-ESTEEM

From these analyzes, it was found that the results obtained from the experimental groups had significant increases in the self-esteem from it low level to high level when compared with one from the control group. This was due to the influence of different packages of yogic practices in the analysis of experimental groups. It was interesting to note that the results obtained from experimental group II had more significant effect than experimental group I and control group on the increased self-esteem.

The findings of Hamid *et al.* (2014) investigated the effect of yoga training was significantly altered stress and self-esteem and its relation to emotional intelligence [Table 3 and Figure 3].

Table 1: Computation of analysis of covariance on plasma glucose

Means	Exp Group I	Exp Group II	Control Group	SV	SS	df	MS	“F”
Pre-test	99.87	105.13	102.13	B	244.04	2	122.02	1.03
				W	4959.20	42	118.08	
Post-test	92.47	92.33	101	B	739.73	2	369.87	4.05*
				W	3839.07	42	91.41	
Adjusted post-test	94.56	89.94	101.30	B	967.53	2	483.77	27.45*
				W	722.67	41	17.63	

Table 2: Computation of analysis of covariance on self esteem

Means	Exp. Group I	Exp. Group. II	Control group	SV	SS	df	MS	“F”
Pre-test	18.67	17.87	19.27	B	14.80	2	7.40	1.13
				W	276	42	6.57	
Post-test	20.93	22.07	19.67	B	43.24	2	21.62	4.75*
				W	191.20	42	4.55	
Adj. post-test	20.89	22.53	19.24	B	77.01	2	38.50	19.71*
				W	80.07	41	1.95	

Table 3: Computation of analysis of covariance on cortisol

Means	Exp Group I	Exp Group II	Control Group	SV	SS	df	MS	o “F”
Pre-test	12.12	12.30	11.98	B	0.77	2	0.39	1.01
				W	16.13	42	0.38	
Post-test	11.59	11.23	11.82	B	2.63	2	1.31	4.65*
				W	11.85	42	0.28	
Adj. post-test	11.60	11.12	11.93	B	4.76	2	2.38	24.36*
				W	4	41	0.10	

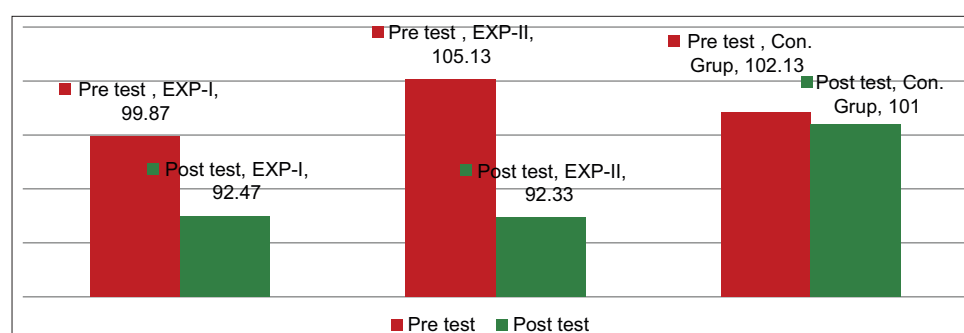


Figure 1: Final mean difference of plasma glucose

FINDINGS OF CORTISOL

From these analyzes, it was found that the results obtained from the experimental groups had significant decreases in the cortisol from it higher level to moderate when compared with one from the control group. This was due to the influence of different packages of yogic practices in the analysis of experimental groups. It was interesting to note that the results obtained

from experimental group II had more significant effect than experimental group I and control group on the decreased cortisol.

These results were found to be in a good agreement with the earlier works done by different researchers. The findings of Schell *et al.* (1994) conducted a study on physiological and psychological effects of Hatha-Yoga exercise was significant changes on cortisol in healthy men.

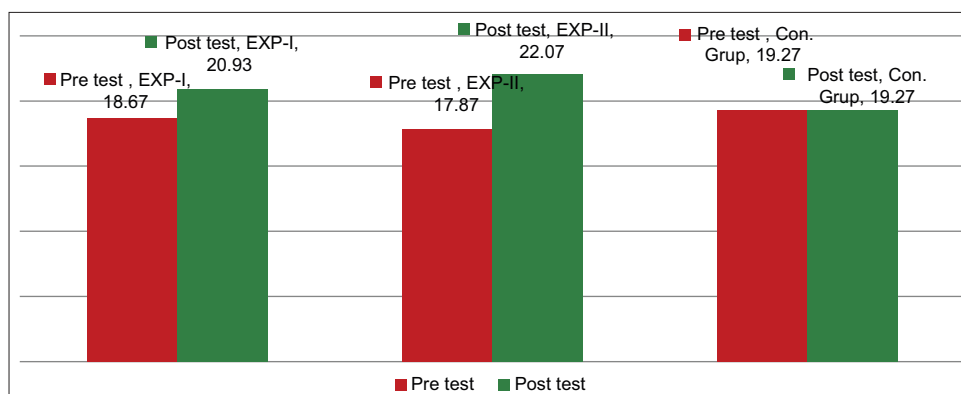


Figure 2: Final mean difference of self-esteem

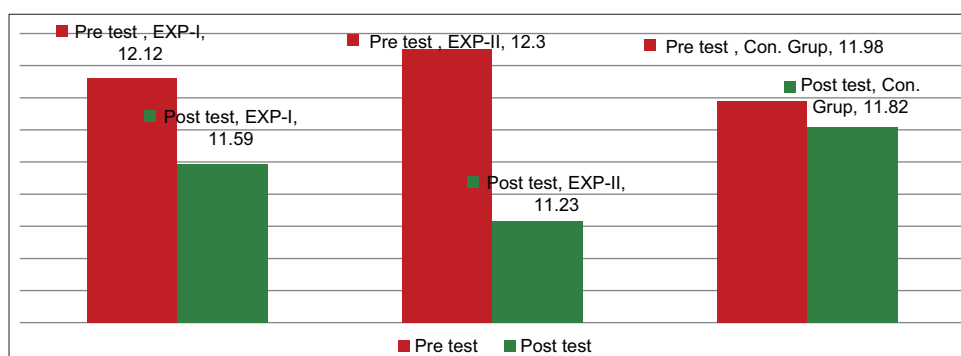


Figure 3: Final mean difference of cortisol

CONCLUSIONS

Within the limitations and delimitations set for the present study and considering the results obtained, the following conclusions were drawn: It was concluded that experimental group II(roasted garlic with yogic practice), the plasma glucose, and cortisol were reduced and greater increased in self-esteem than that of experimental group I and control group due to the influence of 12 weeks practice of different packages of yogic practices with roasted garlic among men compared to the control.

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Research Article

A proposed model for evaluating the skill performance of some karate skills using artificial intelligence

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INTRODUCTION

The rapid change and scientific progress in all aspects of life have forced educational and training institutions to adopt modern learning methods and modern training through the mathematical analysis system. To a high degree that qualifies it to meet the challenges of the times and among these modern means are programs based on artificial intelligence (Ghazi, 2021: 45).

Artificial intelligence is a field of computer that focuses on developing hardware and software systems that contribute to solving problems and accomplishing tasks that, if accomplished by humans, would be considered a kind of intelligence. As the theories and applications in the field of artificial intelligence lead to the development of a wide range of smart tools artificially, capable of solving or helping to solve many problems, and thus the importance of artificial intelligence for students, teachers, and the educational system in general (Asim, 2020: 15).

From this point of view, artificial intelligence-based teaching and training programs were created to support and confirm the importance of artificial intelligence in analyzing and evaluating skills and to present needs that cannot be met by the traditional methods used for traditional computerized teaching programs (Ghazi, 2021: 28).

The development in kinetic learning prompted an attempt to explore alternative models for the art of teaching and learning and the methods that are followed, so that this fine art can be

advanced under the laws and conditions that may often be contrary to the present curriculum (Ahmed, 2010: 1).

Abu Bakr (2013) confirms that artificial intelligence is a relatively recent field that has arisen as one: Simulation of the human mind computer science that is concerned with studying and understanding the nature of human intelligence and simulating it to create a new generation of smart computers that can be programmed to accomplish many tasks that require high ability from inference, deduction, and perception, which are qualities that humans enjoy and fall within the list of intelligent behaviors for them that could not have been acquired by a machine before.

Some studies, such as the study of Kul Asim (2021), the study of Assem (2021), and the study of Al-Saqri. Asim (2020), indicate that the use of artificial intelligence technology in teaching and training physical education sciences, especially in educational skills in the field of physical education and sports, especially in karate skills, give the right indications in teaching skills and evaluating the technical aspects of those skills. The integration of smart teaching systems and the development of feedback mechanisms to simulate the natural educational environment contribute to the development of learning and training systems, and take into account each of the individual needs and requirements. The feedback should be compatible as much as possible with the learner's personality and special needs.

THE STUDY PROBLEM

This technique can solve the problems of objective evaluation. It will help the ordinary teacher to develop his abilities and will fill any deficiency he has through feedback. However, it must be pointed out here that artificial intelligence is not supposed to replace innate or natural intelligence. The purpose is not to

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replace the coach or to do without him entirely, but for the human brain to work side by side with the artificial mind in a perfectly calculated combination. Multiple techniques, software, methods, and applications of artificial intelligence can also contribute to limiting its effects, which are represented by this information explosion and the steady technical and cognitive development, in the educational process of teaching and learning skills and the ability to correctly measure those skills.

OBJECTIVES OF THE STUDY

The study aims to design a proposed model for the skill performance of some skills in karate using artificial intelligence, through:

Identifying the specific technical characteristics of the specific technical performance of some skills in karate (Mae Geri).

STUDY QUESTIONS

What is the proposed model for evaluating some skills in karate (Mae Geri).

STUDY TERMS

A model based on artificial intelligence: The researcher defines procedurally as a model that is programmed to be able to study and analyzes programming codes to detect common logical errors included in the skill while providing solutions to those errors for the programmer student.

STUDY VARIABLES

1. Independent variable: The proposed model (artificial intelligence)
2. Dependent variable: Skill performance evaluation scores
3. Study subject: A model based on artificial intelligence.

STUDY PROCEDURES

Study Methodology

The researcher used the descriptive approach to suit the nature of this study.

Study Population

The study population is the karate players who are registered on the Federation's Players Affairs database.

Study Sample

Experimental sample: Five students were deliberately chosen from those enrolled in the Egyptian Karate Federation and with

a degree of brown belt (1), to apply some skills in karate (Mae Geri). To extract the (stability) coefficient of the evaluation form.

EQUIPMENT AND TOOLS USED IN THE RESEARCH

The researcher used the following research methods, devices, and tools:

Innovative electronic device.

DATA COLLECTION TOOLS

The researcher used several tools to collect data for this research, and they were as follows:

Content analysis of some skills in karate (May Geri).

- Determine the main objective of the model
- Designing the proposed design for the model
- Create a list of logical errors that the model handles
- Designing algorithms for detecting errors in programming
- Programming the model using the Java programming language
- Test the workability of the model
- Presenting the form to the relevant experts and reviewing it
- Direction and final design of the model

Goel confirms (2018 AD): Conducting research in the field of human-centered computing, artificial intelligence, and cognitive science, with a focus on computational design, discovery, and creativity. His research goals are to understand human creativity in the theoretical design of complex systems as well as scientific problem solving, to develop interactive tools to assist people in these creative tasks, and to devise creative computational systems themselves. His research

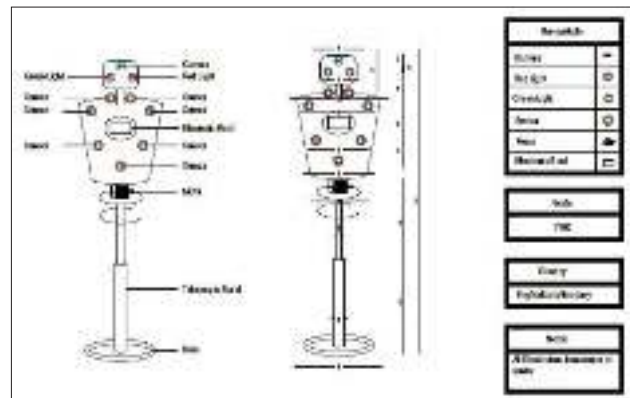
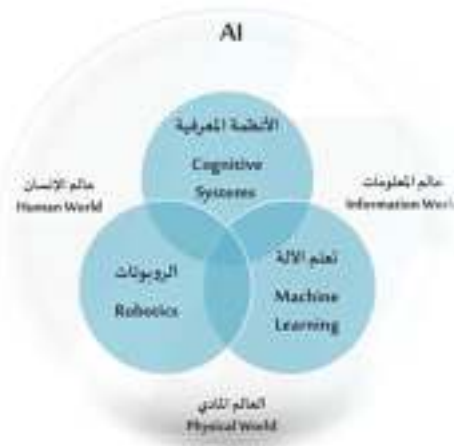


Figure 1: Practical demonstration of the proposed model



Figure 2: What is the strategy for building the proposed model in assessing skill performance using artificial intelligence?

explores analog thinking, systems thinking, visual thinking, and meta-thinking as fundamental processes of design, discovery, and creativity. His present projects explore analog thinking and systems thinking in biologically inspired engineering design, visual reasoning in IQ tests, and meta-thinking in game-playing agents. A related project focuses on Systems Thinking and Meta-Reflection in Ecosystem Learning in Middle School Science and Biological Systems in Interdisciplinary Education in a Biologically Inspired Design (Goel, 2020: 3)



Jules indicated in the schematic system that artificial intelligence techniques include:

A - The material world (robots) is an innovative electronic device in the performance of the study.

B - The world of information (machine learning) flashes used in assessing skill performance.

C - The human world (cognitive systems) arithmetic equations to assess skill performance.

The inputs (the hits and kicks in question (Mae Geri) are the coordinates of all the joints of the body in three-dimensional space (X, Y, and Z) captured from the Kinect. Before processing any of the obtained data, it was necessary to perform some pre-processing one of the challenges in motion capture from Kinect was data normalization. Normalization: The data obtained from Kinect cannot be used directly. During data capture, there will be different body proportions (height, scale, etc.) or a controlling factor in the data. That's why this method used normalization, to make all features in the data use the same scale. So that no feature in the data is dominant. The proposed normalization algorithm.

Operations (arithmetic rates programmed on the database of the electronic program).

PROCESSING AND ALGORITHMS

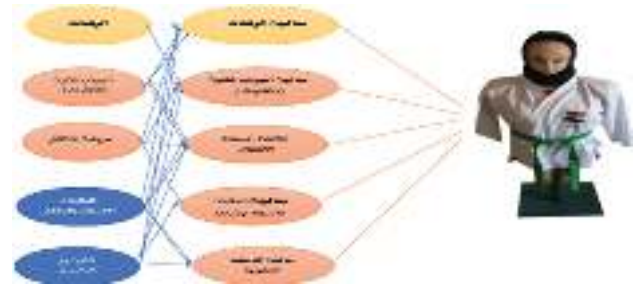
After pre-processing the data, Fast-DTW (Fast-Dynamic Time Warping) was used to manage the different speeds of the movements made by the performers using the Kinect and to provide them with real-time feedback as accurately as possible. Fast-DTW is an algorithm for measuring the similarities between two signals; each signal may have a



Figure 3: Mae Geri skill levels (Mae Geri skill)



Figure 4: Third test (Mae Geri) skill



$$X = \frac{Value - \mu}{\sigma}$$

RESULTS

As mentioned in Section 3.4, a dataset from [11] containing Kata 1 movements including “Age-Uke,” “Mae-Geri,” “Gedan-Barai,” and “Soto-Uke” was used to evaluate the system. All joint positions in motion are categorized. Then, the confusion matrix was calculated, as shown in Table 1. The average accuracy calculated from the confusion matrix is 90%.

In Figure 1, it is clear that the results of both the second degree (Q) are between (3.21%: 1.07%) and the first degree (Dan) is between (4.28%: 3.21%), which is a percentage indicating the normal distribution with different forms (skewness and flatness) in the graph also indicates the kinetic transfer of the skill in its sequential form, and agrees with Nahid Muhammad Ali (2008): That the kinetic flow represents one of the important manifestations of kinetic compatibility during the kinetic learning process and its impact on the speed of reaction during performance, which leads to improving the skill (Mohammed, 2008: 41) (57)

As mentioned in Figure 1 and Table 1, a dataset from [11] containing Kata 1 movements including Mae-Geri was used to evaluate the system. All joint positions were categorized. The confusion matrix was then calculated as shown in Table 1. The average accuracy calculated from the confusion matrix is 90% (Emada, 2020: 1).

Table 1: The percentage of improvement

Results	Improvement percentage			
Skill	Simulation	correction percentage	Error percentage	%
Mae-Geri	10	10	0	100%

different speed than.

Outputs 0 (results and measurements through graphs and arithmetic figures) and output. Which will be categorized as:

Results Screen

This screen will tell the user whether or not he performed the movement correctly, with a percentage of how well he performed the movement correctly. If the percentage is acceptable and the transfer is done correctly, the screen will inform the user and show the percentage of health. If the practitioner performed the movement the wrong way, the monitor will show them what they did incorrectly regarding the movement and how to perform it correctly to report.

Report

The second part of the output will be the report. The report will benefit the student and the instructor. Because this report will contain fully detailed statistics on how accurately the practitioner performs the movements and errors and how to improve performance.

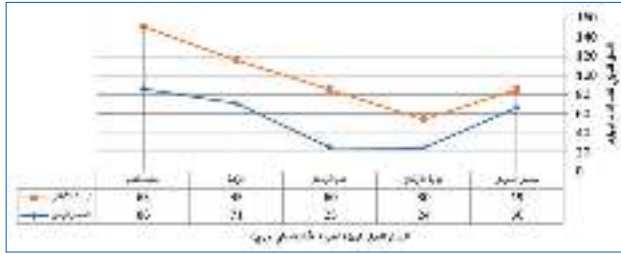


Figure 5: Demonstrates motor transfer during the skill performance of a skill (Mae Geri)

The percentage of improvement in the skill performance of Mai Geri is 100%

RECOMMENDATIONS

Urging the use of artificial intelligence techniques in other skills

The pursuit of using artificial intelligence in physical education sciences.

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Research Article

Effect of plyometric exercises for development of shoulder strength among football players of Osmania University

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ABSTRACT

Plyometric exercises are a vital component for football players for obtaining the maximal strength, speed, and force during the football match and should be included in any conditioning program of football training. The purpose of the present study to find out the effect of plyometric exercises for the development of shoulder strength among football Players. The sample for the present study consists of 20 male football players of Osmania University out of which ten are experimental group and ten are controlled group. Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, and pushups were given to experimental group on alternate days, that is, three sessions per week and controlled group was given the general training for 6 weeks. Pre-test and post-test were conducted in pull-ups to measure the shoulder strength among experimental group and controlled group. This study shows that due to the plyometric training there is an improvement of experimental group in the shoulder strength and controlled group is decreased in performance of shoulder strength. It is concluded that due to plyometric exercises there will be improvement in shoulder strength and speed among football players.

Keywords: Football players, Maximal strength, Plyometric exercises, Shoulder strength

INTRODUCTION

Plyometric train your nervous system to trigger quick, powerful muscle contractions, and workouts include high intensity exercises that emphasize short bursts of energy. Judokas a sport that requires explosive and powerful movements for an athlete to succeed. Plyometrics mimic the physical demands of a fight and will train your body to move more quickly and explosively. When completing plyometric exercises, they must be done in short bursts at the highest intensity possible, then take a brief rest before moving to the next set or exercise.

Plyometric training is a specific exercise regime that is needed to develop muscles that contract maximally in the shortest possible time (Chu, 1992; Siff and Verkoshansky, 1993).^[4,6] Plyometric training is also defined as quick and powerful movements, which lead to the activation of the stretch-shortening cycle (Voight *et al.*, 1995).^[8] This training method was initiated about

30 years ago. The system of plyometric training, as a discrete training approach, can be applied effectively in the most sports today (Grantham, 2004).^[5] Plyometrics are a valid and viable training method to develop muscular strength, speed, and explosive power. One principle factor in plyometric training is that the nervous system is trained to respond to stimuli and to improve neuromuscular skills and muscular strength coordination (Blazevich, 2003 and Brown *et al.*, 1986).

Kumar (2018), this study investigated the effect of weight training exercises for the development of speed and shoulder strength in javelin throwers. Twentymale javelin throwers of Acharya Nagarjuna University, Guntur were used as samples in this study; out of which ten were experimental group and the other ten were controlled group. Weight training exercises were given to experimental group on alternate days, that is, three sessions per week while control group was given general training for 6 weeks. Pre-test and post-test were conducted on 30 m run and pull-ups to the experimental group and controlled group. This study shows that there is an improvement in speed and shoulder strength of experimental group due to the weight training exercises. Therefore, it is concluded that due to weight training exercises there will be an improvement in speed and

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Table 1: Mean values of pull-ups test between experimental and control groups of football players hil

Variables	Group	Pre-test Mean	Post-test Mean	<i>t</i>	<i>P</i> -value
Pull-ups	Experimental	10.00	13.51	6.19	0.000
	Control	10.10	10.00		

shoulder strength among Javelin throwers. Keywords-weight training, shoulder strength, speed.

METHODOLOGY

The sample for the present study consists of 20 male football players of Osmania University out of which ten are experimental group and ten are controlled group. Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, and push-ups were given to experimental group on alternate days, that is, three sessions per week and controlled group was given the general training for 6 weeks. Pre-test and post-test were conducted in pull-ups to measure the shoulder strength among experimental group and controlled group.

RESULTS

This results of the study shows that due to the plyometric training there is an improvement of experimental group in the shoulder strength, controlled group is decreased in performance of shoulder strength due to the general training [Table 1].

The experimental group of pull-ups in pre-test is 10.00 and controlled group mean is 10.10 in pre-test there is a difference of 0.10 in pre-test. The experimental group mean in pull-ups test is 13.50 in post-test and controlled group mean is 10.00, the experimental group mean in post-test in pull-ups test is improved from pre-test 10.00 to post-test 13.51 and control group mean is post-test is 10.00 there is a decrease in the performance from 10.10 to 10.00. The experimental group has improved due to plyometric exercises in pull-ups test and controlled group is decreased due to general training.

CONCLUSION

Plyometric exercise involves using explosive and fast movement to develop power in your muscles. They are exercises that will allow muscles to exert their maximum force in the shortest time possible. It is an important area for football players as it helps with all aspects of their performance.

RECOMMENDATIONS

Similar studies can be conducted on women football players and other sports and games.

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Research Article

Teachers' practices on the implementation of physical education in primary grades in South Cotabato, Philippines: A qualitative inquiry

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ABSTRACT

Physical education is critical in primary grades because it lays the foundation for lifelong commitment to physical activities for holistic development. Numerous scholars have examined the implementation of physical education in the Philippines, but only a few have attempted to investigate the implementation in primary grades. Hence, this research was undertaken using a Qualitative Phenomenological Research Design to fill this void. Selected primary school teachers teaching physical education in South Cotabato, Philippines, served as primary research participants. Series of in-depth interviews were done to extract the necessary information needed. Five significant themes appeared to be substantial findings of this study. These include the following: Development of physical education lesson plans for primary grades with objectives that are appropriate for learners; mastery of elementary teachers teaching physical education; teachers teaching physical education on motivating pupils to participate; effectiveness of implementation through demonstration; and appropriate attire for the subject. The findings were then used to form critical components of the conclusions.

Keywords: Implementation of physical education, PE in primary school, Phenomenology, Philippine K to 12 basic education, Primary PE teachers

INTRODUCTION

Republic Act No. 9155, also known as the "Governance of Basic Education Act of 2001," and Republic Act No. 5708, also known as the "School Physical Education and Sports Development Act of 1969," both provide that integrated physical education and school sports and physical fitness programs shall continue to be included in the basic education curriculum and shall be administered by the Department of Education (Villanueva, 2017). Physical education's purpose and role in institutionalized education have shifted away from teaching hygiene and health toward educating pupils about the numerous kinds and advantages of physical activity, including sports and exercise (Kohl, 2013). Physical education implementation is a significant problem for all instructors and

stakeholders today, requiring increased work and understanding to implement this subject in schools as a part of a rising society. Physical education is becoming neglected as a topic due to a lack of support from school heads or leaders and a lack of practice and implementation (Porter, 2015).

The association for physical education emphasizes that the high-quality physical education facilitates pupils' physical, spiritual, social, mental, cultural, and intellectual development, and that as a school subject, physical education is focused on teaching school-aged pupils the science and methods of physically active and healthful living (NASPE, 2012). However, several physical education objectives, such as health promotion, professional development, and an emphasis on social and moral issues, have contributed to topic confusion and have done nothing to advance realistic educational exchanges. In comparison to other disciplines, physical education clearly lacks a medium through which pupils' learning can be imparted and depicted with consistency and rigor. Physical education is constantly pushed to the margins to make place for more

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scholarly or significant disciplines, it appears as though the intellectual and academic significance of physical education is mostly neglected (Sprake and Palmer, 2018).

Schools must view physical education as a component of their educational experience and not overlook the distinctions between physical education and other disciplines in school. Providing and promoting health-related physical activity is only one of the physical education's numerous educational objectives; the subject also has expectations for pupils' motor skills, cognitive, social, and emotional outcomes, and physical education in primary school has been identified as the optimal developmental window for pupils to adopt healthy lifestyle behaviors and thus participate in lifelong physical activity (Porter, 2015).

Physical education is a critical tool for promoting healthy living, and the school is the ideal setting for emphasizing the importance of physical education. Physical education has a direct impact on pupils' well-being, and pupils must engage in appropriate physical activities that will help them avoid risk and diseases. This would benefit pupils at an early age in terms of developing an appreciation for things and training and disciplining them to practice physical education for a healthier lifestyle with the assistance of teachers who are responsible for introducing and implementing physical education to primary pupils. Because primary education is generally viewed as the foundation for formal teaching, activities are expected to take precedence in the development of pupils (Sanni *et al.*, 2018).

A proper program and lesson plan should not be focused exclusively on primary school level, but should also take individual growth into account. Avoiding shortcomings in the implementation of physical education in elementary schools should ensure that kids have an adequate understanding of physical education and encourage them to participate in appropriate physical activities that truly boost learning (Bakhtiar, 2013). The consequences of meaningful implementation of physical education are dependent on the active participation of pupils (Adeyemi, 2018), where adequate resources for learning and child development are critical for effective implementation.

The goal of this study is to look into teachers' practices when it comes to implementing physical education in primary school. The main themes highlighted serve as a foundation for improved implementation and would aid in developing interventions that would have a substantial impact on defining the best physical education in primary grades and on the health and benefits of physical education in elementary.

METHODS AND MATERIALS

Research Design and Procedures

This study used a qualitative phenomenological research design to examine the implementation of physical education

in the primary grades in South Cotabato, Philippines. A phenomenological method focuses on the shared experience of a group of people. The approach's primary objective is to arrive at a description of the nature of the observed occurrence. According to the Thattamparambil (2020), qualitative research is utilized to gain an understanding of people's views, concepts, and experiences. This would be an excellent basis, since experiences, situations, and difficulties would be properly identified and could easily be brought up for improved implications on a more favorable future outcome. The researchers got permission letters from multiple study locations and a signed informed consent agreements from research participants. Following that, interviews were scheduled at their convenience.

Research Participants and Materials

The participants for this research were the 25 physical education teachers in primary schools in South Cotabato, Philippines. Teachers expressed their experiences implementing physical education and share about their practices in the implementation of physical education during the evaluation using the guide questions.

Data Analysis and Interpretation

Following the interviews, the researchers followed the procedures for authentic data analysis, in which they first transcribed the recorded data, then translated the verbatim data of the participants' responses from their mother tongue to English, categorized the participants' responses, and finally, after identifying the main ideas, essential themes were able to emerge.

Three processes were taken to examine the transcribed data: Data reduction, data visualization, and conclusion formulation and verification. Data reduction was the process of encoding and decoding codes, as well as transforming derived data into tables and discussions. Data reduction collected the desired information by filtering the responses of participants and extracting the essential and relevant concepts. Thematic analysis is a technique for categorizing data and was used to code the gathered qualitative data. On the other side, data presentation refers to the way organized data are presented. This step facilitated the flow of information from which the conclusions were made.

Finally, conclusion drawing and verification take place. The former summarizes the major inputs that can be found in the study after their repercussions to the questions are evaluated. Conversely, it strengthens the conclusion by reexamining the data as many times as needed until the desired confirmation is satisfied.

The narration of the participants' real experience based on their context occurred at the beginning of the interpretation. After

carefully discussing the participants' experiences, iterative interpretation based on their responses was given. Theories and studies were used to support the interpretation of the data. Limitation of personal bias was observed to preserve the genuineness of the participants' thoughts and feelings.

RESULTS AND DISCUSSION

This chapter presents the experiences, the standpoints, and the insights from the participants, which surfaced in the in-depth interviews and focus group discussions [Table 1].

Theme 1 - Develop a Lesson Plan and Objectives that are Appropriate for the Students

The first major theme appeared on the responses of participants discussed on how teachers prepare lessons to implement physical education in primary grades. An effective teacher has positive expectations for student success, and teachers must have the ability to be a good implementer and must create a good plan for delivering lessons which are effective and with inclination to the learning of pupils. Lesson plan reflects such expectations, an effective teacher knows how to design lessons for pupils' mastery; which is reflected in lesson plan, and an effective teacher is an extremely good classroom manager; which is possible through good time management during class time and that is possible only by effective implementation of a good lesson plan (Cicek and Tok, 2014).

When participants were asked on how they are preparing their lessons to implement quality physical education in class, making of suitable lesson plan is most mentioned by the participants. Teacher #1, Teacher # 4, and Teacher #8 said:

"I made lesson plan that would suit to the pupils that I am teaching, next in making of the lesson plan, I am making the teaching materials, instructional materials that suit to the lesson plan that I have made." (T1)

"My lesson is fit to pupils, (because), we also have MELC that we follow, the teacher's guide we had, what will be the things to teach to pupils, first grading second grading, third grading until fourth grading." (T4)

"...it is about the lesson plan, it also depends on the topic, there is simple, and there is difficult, but mostly in grade 3, it was simple, such as shapes of the body first, exercise, flexibility, body bending, that's it..." (T8)

The impact of preparation and planning is tremendous on student learning (Meador, 2019), Teacher #12 also stated:

"Number one, you must follow what is on the lesson plan, you follow it." (T12)

In implementing a quality physical education, the teachers must have the knowledge on how to make lesson objectives that suit to learners. Commonly implemented lesson plan practices include the concept or objectives to be taught, time

Table 1: Primary school teachers' practices on the implementation of physical education

Major themes	Frequency of responses	Core ideas
Develop a lesson plan and objectives that are appropriate for the students	General	Making of teaching or instructional materials that would suit to pupils
	Variant	Objectives must be fit to pupils
	Variant	Activities must fit to pupils so the outcome will be positive and have good output
	Typical	Prepared lesson plan must be from the curriculum guide
	Variant	It is possible for twisting of activities that the pupils can do
	Typical	You must follow what is on the lesson plan
	Variant	Review the topic from curriculum guide
Teachers must be prepared and confident in their ability to teach.	Variant	It is difficult to deliver If you do not have background
	Variant	Pupils do not have interest when teacher do not master the topic
	Variant	Teachers must be prepared of their lessons
Motivate pupils before starting physical education class	General	Motivate the student so that they get ready on your lesson
	Variant	Giving a clue to pupils for what will be the lesson
	General	There are instructions to motivate pupils before the actualization
Demonstration of the activity before implementation	General	After the instructions, you must show them in physical
	General	Instructions are easy to follow when there is a demonstration
Wearing of PE uniform in PE class	General	It is really different when there is PE uniform

General-response mentioned by 50% or more of the participants, Typical-response mentioned by at least 25% but less than 50%, Variant-response mentioned by less than 25% of the participants

block, procedures to be used, required materials, questions, independent practice, and evaluation (Cicek, 2013). Teacher #2 and Teacher #7 said:

"Of course, we are going to make our objectives, and then, our objectives must fit to pupils, our activity must fit to the pupils, so that the outcome will be positive, there will be good output hahaha ok nayun." (T2)

"You must, first is to prepare your objectives, to get what you want to achieve in PE, I think, they are in preparation for higher, we are just in basic, correct position of standing, sitting, we are on introduction on PE this time." (T7)

In addition, teachers are using their teacher's guide for their preparation on the implementation of physical education in class. Teacher #9 and Teacher #10 express their thoughts:

"Our lesson, we based it in, in guide, because we can't go beyond from our guide, what is asked there, what is the demand, and what is needed, that is what we do, we still prepare our lesson plan every day, even there is downloadable, we still rewrite the lesson plan in our notebook, it does not mean, that you just rely on what you have searched on the internet, we still rewrite it, and sometimes, when our activities is difficult, so we twist it to other eh hahaha, to what is possible for them to do." (T9)

"Review the topic on our guide, then to ready the materials needed for the activity." (T10)

The fundamental expectation of the physical education curriculum in K to 12 does not only develop a healthy person but a physically literate and health conscious individual who is capable of influencing the wider society (Tanucan and Hernani, 2018).

Theme 2 - Teachers Must Be Prepared and Confident in their Ability to Teach

This theme is mentioned by participants that explains the importance of mastery and preparedness of teachers when it comes to implementation of physical education subject. Moreover, it is indeed an important thing that a teacher must possess before starting a physical education class. The teachers' preparation and mastery of the lessons are really essential in teaching pupils, especially in elementary, the teachers' confidence, knowledge, and understanding impact the learning of the pupils (Porter, 2015). Teacher #11 confidently said:

"Especially to pupils, if you do not have background, it is really difficult to implement, especially if you do not master one topic or the subject, the pupils is like, do not have interest to learn, so you as teacher, before you deliver the lesson, you should prepare for it, you should master it, so that the pupils will say "our teacher is great" (T11)

Teachers are under a lot of pressure to meet the curriculum standards. Sometimes, teachers will rely on their own school experience, whether it was positive or negative. Rather than learning from professional pre-service training, their own physical education teaching is a mirror of these experiences. Primary school physical education lessons must be of the high quality, as a result of this. Further, schools must guarantee that instructors receive proper and continuing professional development, because professional development is essential when seeking to enhance the classroom practices of teachers, as well as affect their attitudes and beliefs toward physical education (Curry, 2012).

Teachers' mastery and learning experiences provide valuable, challenging, and gratifying enrichment activities provided they are properly implemented. It is possible for nearly all kids to acquire a high level of achievement if teachers can offer the necessary time and acceptable learning environments (Guskey, 2010).

Theme 3 - Motivate Pupils before Starting Physical Education Class

This theme tackles the motivation that physical education teachers must give to the pupils so that they will be more interested in the lessons. Teachers must have the ability of making something that would increase the interest of learners in learning. Physical education, sports, and health teachers need to improve pupils learning and situational interest to provide attractive teaching, something new, challenging, so the pupils would be interested in trying to learn the task with spirit and do it with the high motivation. The impacts of motivation to pupils will increase their attention to learn and participate on the lesson (Limawati *et al.*, 2017). Teacher #5 and Teacher #13 shared:

"So, uhm, I motivate them first so that they get ready for my lesson, and then you ask them guide question, or question for introduction, so that they will get a clue of what will happen in your class, so that they will get ready." (T5)

"So if you show them your motivation, of course you motivate them first before you start on your lesson, especially in games, they are really eager; because when there is class, they get bored in a while hahaha, before, there are instructions first, then it will be actualized...." (T13)

To support the pupils' learning, teachers would impact the participation of pupils by supporting their learning motivation and social integration in class for better achievement (Anderman *et al.*, 2011). Teachers who are motivated and motivating pupils would impact on learners' self-efficacy beliefs and academic performance. The teachers' persistence, professional commitment, openness to new methods in teaching and positive teacher behavior,

and using more humanistic, positive, or teacher-based strategies to deal with student problems would help pupils learning (Mojavezi, 2012).

Theme 4 - Demonstration of the Activity before Implementation

This theme discusses about the importance of demonstration in implementing physical education classes. During physical education activities, teacher must have the strategies in simple ways that pupils would easily cope and understand the activity for better performance and participation. Teacher #3 stated:

"You must teach them first, and then, after you teach them, you must show them, like, show what you have teach in physical, for example, is doing exercise, example if your lesson is about correct standing position, you should teach it, show them physically, then they will follow." (T3)

A fast and effective way to present a physical activity is to demonstrate it. Effective demonstration accentuates critical points of performance. While demonstrating, simultaneously call out key focal points so that pupils know what to observe. Demonstrating all physical activities are impossible. Even skilled teachers need an alternative plan for teaching activities they cannot perform. By reading, studying, and analyzing movement, you can develop an understanding of how to present activities (Pangrazi and Beighle, 2019).

To achieve accurate and effective motor execution, motor learning encompasses a variety of everyday life events. It is characterized as an intentional and planned endeavor. Several researches have been conducted in the sports arena to better understand the factors that influence technical and tactical learning. There is evidence in the literature that knowledge of the results, attention focus, establishing goals, the impacts of varying demonstration numbers, and stages of motor learning can all help to the development of abilities. Independently of the sport, motor learning can be influenced by a variety of elements, including feedback, verbal instruction, and demonstration. While the demonstration method involves the transfer of spatial and temporal movement information, which allows the subject to develop a cognitive representation of the action, the instruction method involves verbal instruction, which improves the subject's cognitive representation of the specific task. In this regard, some scientific evidence suggests that the demonstrative technique is a better way to teach physical activities (Ferrari, 2018).

Theme 5 - Wearing of Proper Uniform for Physical Education Class

This theme emphasizes the importance of wearing of uniform that suit to pupils. The school setting provides a unique

opportunity to promote physical activity in pupils by ensuring adequate time, appropriate facilities and education guidance are offered. However, school uniform design could also limit physical activity (Norrish *et al.*, 2012). Teacher #4 answered:

"Uhm, so in physical education, uhm, I make it sure, I make sure that, it is really different when its complete uniform, so there should be a uniform, PE Uniform." (T4)

Moreover, the school environment provides an important opportunity to enhance daily physical activity in pupils. The school day includes formal physical activity opportunities such as physical education and sport as well as unstructured play time during recess and lunchtime breaks. Activity undertaken during these important play breaks is discretionary and pupils' best accumulate activity when they are able to interact with their peers in an outdoors setting (Norrish *et al.*, 2012).

CONCLUSION

The findings of this study indicate that there are factors both inside and outside the classroom that affect the quality of physical education implementation in primary grades. In addition, a variety of significant themes that affect the quality of physical education occurs throughout the generation. This study examines the behaviors of primary teachers who teach physical education and how they apply the topic effectively for the benefit of their students' growth. The criteria identified would also imply a decline in teacher and pupil satisfaction regarding learning growth.

Thus, the study implies that while physical education implementation in primary grades is not bad, there are factors affecting its implementation such as constraints that affect student performance. In addition, teachers integrating physical education subjects in primary grades must be familiar with or particular to the subject's true essence for learners to grasp and appreciate it while performing and learning at the same time.

Some of the factors affecting the implementation of physical education have already been encountered by non-physical education teachers and, more specifically, by elementary teachers who are generalists in their expertise but lack experience in implementing a quality physical education due to a lack of mastery of the lesson and other factors such as a lack of school references and materials.

In addition, physical education in the primary grades is not well-implemented and is marginalized for a variety of reasons, negatively impacting students' opportunities and exposure to some pleasant and fascinating physical exercise that would increase their ability and abilities at an early age. To ensure successful implementation, teachers must align their lesson objectives and accomplish their goals in teaching the

subject. Primary teachers should master their lessons before implementing them in class, as this will affect the development of the young learners. Teachers must also motivate students to participate and learn with a high level of interest in the PE subject, and proper demonstration is one factor that will assist them in learning.

Republic Act 10533, commonly known as the Enhanced Basic Education Act of 2013, requires the state to provide a viable elementary education system capable of developing productive and responsible individuals armed with the necessary abilities, skills, and values. Thus, the Department of Education, the principal, and school staff should pay close attention to teachers' concerns about implementing a high-quality physical education program that has a positive impact on holistic learning and student development.

As a result of the research's findings and conclusions, the following are recommended:

1. Each year, the learning materials must be updated. Materials should have objectives that are achievable within the learners' capabilities and that align with the K–12 curriculum to promote the development and opportunities of pupils
2. Because the most primary school teachers in the Philippines are graduates of Bachelor of Elementary Education and are Generalist, the school management should hire experts who have completed physical education courses
3. It is necessary to revise older references, such as physical education textbooks
4. School-based evaluations of teachers of physical education in primary grades shall be possible to improve monitoring and future implementation
5. Teachers' motivation for their students should be increased to encourage involvement and create an engaging learning environment
6. Because the most of the Philippines' areas have a hot environment, the Department of Education should recommend a fabric for physical education uniforms that are pleasant to wear for all Filipino students, especially pupils in primary grades who are exposed to greater play time.

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CONFLICTS OF INTEREST

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Research Article

Physical Fitness, Food Intake and Physical Activities of School Children of Bahawalpur City

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ABSTRACT

This study was conducted to examine the which type of food is giving to their school children and what is their capacity of physical fitness. Data were collected from both private and government school children. There selected variables were height, weight, endurance, speed, strength, and food intake were judged through adopted questionnaire. An independent *t*-test was applied to compare boys and girls in their physical fitness and food intake. Results showed the boys were significantly higher in their strength, agility, and speed than the school girls. In contrast, school girls were significantly better in their food choice and physical activities than the schoolboys. Its concluded that eating habits among girls are better than boys but in physical fitness, boys were better. It is suggested that both boys and girls would be better in physical fitness and physical activities should be compulsory for participation. The food intake, participation in physical activities, and physical fitness must be monitor in schools.

Keywords: Food intake, Physical activities, Physical fitness, School boys, School girls

INTRODUCTION

Physical activity is not only based on the physical development of children along with a healthy diet is compulsory to prevent from obesity and other diseases. Physical fitness during childhood and adolescence has been identified as an important part of present and future health status (Smith *et al.*, 2007). Physical fitness is a mullet-dimensional building that comprises skills and health-related components (Alexander *et al.*, 2016). While to evaluate similar performance characteristics such as speed, strength, and agility, the direct comparison (Piton *et al.*, 2014). Physical fitness is a condition of health and well-being and, more specifically, the capability to perform features of sports, occupations, and daily activities. Physical fitness is generally complete through proper nutrition, moderate-vigorous physical exercise, and sufficient rest. A set of food intake connected to a person's ability to perform physical activity successfully, physical movements play a vital for brain development during the early age in children (Wolfsan, 2002). Regular physical activity increases the amount of oxygen delivered to the brain, which increases children's capacity to learn (Galley, 2002). In fact, there is a growing concern regarding the number of children who are living a sedentary

lifestyle (Stand *et al.*, 2003). Healthy diet positive effect on children fitness. Food intake effects on the fitness of the school children. The aim of this research was to point-out the food intake and physical fitness among school children because there was lacking research in Pakistan to identify the food intake and physical activity among school children. The ingredients that are associated with decreased physical activity among school children and epitomize latest school-based initiatives, such as structured food intake and physical fitness programs. There is significant of food intake and physical fitness among school children. There is a significant age difference of children food intake and physical fitness. The focus of this study was to determine and relate the physical activity in boys and girls from different ages in the city of Bahawalpur.

METHODS AND MATERIALS

Participants

The participants of this research were selected from six Government and Private Schools of the city Bahawalpur. Data were collected from ($n = 240$) with the age range of (group 1) and (group 2). The present research design is cross-sectional. Purposive sampling technique was used to collect data. The instruments used agility test was by measured throw T run test 30 m dash, flexibility test by sit and reach test height measured throw measuring tape and body mass were measured with studio meter (standard steel), endurance throw

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600 m and standing broad jump of school children. Procedure of data collection was data was taken with formal consent of the participants. Data will be analyzed using statistical package for social sciences SPSS- 25. Total population of Bahawalpur 820,000. Bahawalpur has thousands of registered schools, including government schools and private schools. These schools provide education to thousands of students in Bahawalpur. The number of city Bahawalpur schools is 1936. We select the six government and private schools and collect the data from school children throw questionnaire and fitness test.

The participants of this research were selected from 6 Private and Government Schools. The school name was Government SD Model High school, Government Sadiq public girl's high school, Government girls' high school, APWA girls high school, Dar-e-Arqam model school, Allied public School. Total data were collected from ($n = 240$) children. In this research participants were group 1 ($n = 120$) boys and group 2 ($n = 120$) girls. The present research design is cross-sectional. Purposive sampling technique was used to collect data was a sample of 240 participants 40 from each school. Tests were used to collect sample size. Purpose sampling technique was used to collect the data. The participant enjoyed this activity a fully cooperate with researcher and teachers also.

Instruments

Agility test was taken by adopting zigzag, 30-m sprint race, sit and reach test was adopted for flexibility test (Expert Leisure supplies), height and body mass was measured with studio meter (standard steel), of school children. The demographic data were collected using form questionnaire, weighing device, measuring tape, and fitness tests such as name, age, and principal signature.

Camry weight machine

Camry weight machine is used to check the weight and knowing about the normality of weight we can use it also in research. The study of Galati, Hochdorn, Paramecia, Chaffy, Kumar, and bald (2014).

Flexibility

Flexibility is the ability of a joint or series of joints to move through an unrestricted, pain-free range of motion many variables affect the loss of normal joint flexibility including injury, in activity, or a lack of stretching. This test was first described by wells and Dillon (1952). A tape measure is a portable measurement device used to quantify the size of an object or the distance between objects. The tape is marked along the tape edge in inches.

Agility

The t -test is a simple running test of agility, involving forward, lateral, and backward movements, appropriate to a wide range

of sports. Agility training improves flexibility, balance, and control. It helps the body to maintain proper alignment and posture during movement. The University of Illinois when he first started to investigate the agility characteristics, Leroy Getchell, in (1989).

Procedure of data collection

A sample of 240 participants 40 from each school. Test was used to collect sample size. Purposive sampling technique was used to collect data. Participants were to act on tests to check the dietary intake and physical activity of school children. Data were taken with formal consent of the participants. The participants were also assured for confidently of the data they provided. They were enjoyed participating this activity and fully cooperate.

RESULTS

This chapter will discuss about the results and interpretation of the table. The aim of this chapter is to summarize the collected data and briefly discuss about the statistical treatment to the data and interpretation of the result obtained by the statistical analysis. This research investigates by utilizing the food intake and physical fitness of children ($n = 240$). These activities height, weight, flexibility, agility, speed, strength, and endurance were described in theses table. Independent t -test analysis was used to compare the means and standard deviations the food intake and physical fitness of children two groups group one boy and the group two girls. The physical fitness variable was height, weight, and flexibility, endurance, strength, agility, and speed have found out the significant difference with each other. The significant value was set at $p < 0.05$.

Table one showed that the strength of the boys and girls was significantly different from each other as $t = 5.24$, $p > 0.00$ the result showed that the boys were significantly higher strength group girls. Agility of the boys and girls was significantly different from each other as $t = 1.81$, $P > 0.04$ the result showed that the boys were significantly higher agility group girls. The speed of the boys and girls was significantly different from each other as $t = -0.95$, $P > -0.03$.

Table 1: Selected population of school children in Bahawalpur city

School name	Total population	Selected population
G.SD model high school	1060	40
Sadiq girls high school	980	40
G.G.H. S	950	40
APWA.G.H. S	600	40
Dar-e-Arqam Model school	540	40
Allied public school	398	40

Table two showed that the boys was significantly difference from each other as how many days did you do workouts to build and strengthen as $t = 2.12$, $P > 0.04$. How often do you make small changes on purpose to be more active $t = -1.62$, $P > 0.04$. How often do you wash hands with soap before eating $t = -2.33$, $P > 0.02$. Washing hands before eating the boys) $t = 1.67$, $P > 0.03$. How often do you thaw frozen food on the counter or in the sink at room temperature $t = 1.48$, $P > 0.05$. You sleep without taking your dinner how many times

happened $t = -1.56$, $P > 0.03$. Do you find meal kitchen or in freezer when you are hungry the boys and $P > 0.00$.

DISCUSSION

Independent t -test was used to compare the means and standard deviation of the physical fitness of the boys and girls. Results showed that there was a significant difference reported in strength, agility, and speed between the group of boys and girls. Because the group two participated in daily physical activity and played the game of football, therefore, they have good and higher strength, agility, and speed to the group two. The study of Galati, Hochdorn, Parametia, Chaffy, Kumar, and Bald (2014) supported the results of the current study. The result showed that there was no-significance difference between group one and group two. The group one lesser height, weight, flexibility, and endurance then group two. These groups of two participants were daily played the badminton game they were active and their muscles are flexible and stretched they eat proper diet. Their muscular strength is good because their muscles are strong and healthy group one. The study of Grant and Paton (2003) supported the results of the current study.

Table 2: The comparison of the physical fitness of the children

Groups	Boys		Girls		T	Df	Sig.
	Mean	Std. D	Mean	Std. D			
Height	52.30	3.80	52.82	4.20	-1.00	238.00	0.32
Weight	33.20	7.08	34.03	8.27	-0.83	238.00	0.41
Flexibility	6.74	1.70	6.76	1.91	-0.07	238.00	0.95
Endurance	16.60	2.08	16.43	2.02	0.66	238.00	0.51
Strength	28.83	3.69	26.73	2.38	5.24	238.00	0.00
Agility	12.58	2.02	12.13	1.82	1.81	238.00	0.04
Speed	8.91	1.86	8.14	1.85	-0.95	238.00	0.03

Table 3: The comparison of food intake effected on physical fitness of Bahawalpur children

Variables	Boys		Girls		t	Sig.
	Mean	Std. D	Mean	Std. D		
How many times a day do you eat Fruits?	3.52	1.44	3.70	1.24	-1.06	0.29
How many days in a week do you eat oranges and vegetables?	3.88	1.27	3.92	1.17	-0.26	0.79
Over the last week, how many days did you eat dark green vegetables?	3.45	1.68	3.28	1.67	0.77	0.44
How often do you drink regular sodas?	3.12	1.64	3.36	1.57	-1.17	0.24
How often do you drink fruit punch, sweet tea, or sports drinks?	3.47	1.90	3.76	1.92	-1.18	0.24
How many days do you exercise for 30 min?	3.94	1.84	4.01	2.01	-0.27	0.79
How many days do you workouts to strengthen your muscles?	5.31	2.59	4.61	2.53	2.12	0.04
How often do you make small changes on purpose to be more active?	4.07	2.45	4.58	2.40	-1.62	0.04
How often do you wash your hands with soap before eating?	3.77	1.80	4.31	1.80	-2.33	0.02
Do u you wash your hands before eating?	5.50	1.06	5.23	1.39	1.67	0.03
How often do you use frozen food?	5.53	1.02	5.30	1.39	1.48	0.05
How often do you thaw frozen food on room temperature?	5.15	1.39	5.29	1.38	-0.79	0.43
How often do you use cooked meat?	5.16	1.69	5.29	1.34	-0.68	0.50
Do you eat meal with your family?	2.98	2.08	3.02	1.98	-0.16	0.87
Your pocket money has come to end, and do not get any more to eat?	2.26	1.70	2.51	1.58	-1.18	0.24
You sleep without taking your dinner how many times happened?	3.05	2.15	3.45	1.82	-1.56	0.03
How often do you compare food prices to save money?	3.45	1.97	3.53	1.86	-0.34	0.74
How often do you plan your meals before you shop for groceries?	4.68	1.81	4.88	1.74	-0.87	0.38
Do you find meal kitchen or in freezer when you are hungry?	3.73	2.04	4.70	1.66	-4.07	0.00
How often do you make a list before going shopping?	4.19	2.17	4.28	2.03	-0.34	0.74

Significant value as $P < 0.05$

CONCLUSION

The purpose of this study was to find out the difference of food intake and physical fitness of school children and to examine the gender deference in physical fitness among school children. The participants of this research were selected from six government and private boys and girls schools. Data was collected from ($n = 240$) with the age range 7–10 years of boys and girls children. The present research design is cross-sectional. The purposive technique was used to collect the data. The instrument used measured by physical fitness for agility test was taken by adopting zigzag, 30 meter sprint race, flexibility measured by wooden box, height was measure with stadia meter (standard steel), weight was measure by weighting machine, and the muscular strength tested by STB jump and questionnaire used by food intake of school children. The food intakes of children are positive effect on the health and physical fitness. We found out the positive attitude of the children through the physical activities. Food intake and regular physical fitness improve the mental health and behave of children. The group one children who participated the regular activities and food intake properly are healthy than the group two. As a result group, one is higher fit and active. It is suggested to the school children to participate more in sports activities to control their obesity. The schoolteacher and parents should be that they involve their children in physical activities. Those children who were food intake and engaged in physical activities are more active than group two. Future studies would be conducted by consider the food intake and physical fitness of children. The study of Laura Baste field (2014) supported the current results.

RECOMMENDATIONS

It is suggested to the school children to participate more in sports activities to control their obesity. The schoolteacher and parents should be that they involve their children in physical activities. Those children who were food intake and engaged in physical activities are more active than group two. Future studies would be conducted by consider the food intake and physical fitness of children.

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Research Article

A study on physical and motor fitness among volleyball, handball, and kabaddi players

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ABSTRACT

Motor fitness is regarded as the preparedness for performance with special regard for big muscles activity, in a more general phase of physical fitness. Fundamental and success of all games and sports are higher level of physical and motor fitness. Under any hypothesis, a secured and fit body is a re-requisite to become a top-level performer in any of the games and sports. Prakash (1984) conducted a research program on comparison of selected physiological and physical factors of handball, kabaddi, and volleyball.

Keywords: Hand ball and Kabaddi players, Physical and motor fitness, Volley ball

INTRODUCTION

Volleyball is the game which is not having physical contact with opposite teams' player. Comparing to other two games in the study, volleyball needs less vital capacity because when every point was scored they will have the breathing time while net service. However, vital capacity is needed while playing the rally. Endurance is needed to play whole five sets of match which is having 25 points in each set. Speed is needed to the ground and spike the ball while moving. Handball is a fast moving vigorous combative game so lot of oxygen is needed to play for an hour. Hence, handball needs to be good oxygen uptake capacity (vital capacity).

While handball has to play 60 min in a same energy level so lot of endurance is needed to play the game. While on the move of task break and while coming to difference speed will be needed to gain the position. Kabaddi is an also vigorous agility game with lot of body contact. In this game, vital capacity holds an important role while doing cannot skill. Rider has to hold his breath while riding in opponent's court. If he loses his breath, he will be called out. Hence,

more vital capacity is need than any other sport in the study. Kabaddi players need endurance for play a 40 min and speed is needed for antiriders to catch the riders while riders need speed to escape from antiriders and to touch the center line to gain the point.

To study the significant difference between volleyball players, handball players, and kabaddi players with respect to diastolic blood pressure. To study the significant difference between volleyball players, handball players, and kabaddi players with respect to 50 m speed. To study the significant difference between volleyball players, handball players, and kabaddi players with respect to endurance of 1000 m. It was hypothesized that there will be a significant of physiological and motor fitness variables among volleyball, handball, and kabaddi players at inter-collegiate player's level.



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There is no significant difference between volleyball players, handball players, and kabaddi players with respect to vital capacity. There is no significant difference between bolleyball

players, handball players, and kabaddi players with respect to diastolic blood pressure. There is not significant with respect to 50 m speed. There is no significant difference between volleyball players, handball players, and kabaddi players with respect to endurance of 100 m.

The limitation of the present study is as follows the food habits; other regular habits and life style are no controlled. The regular activities of the students will not be controlled. Family background of the subject will not be considered. Environmental factors, which contribute to the mental ability of the players, were not taken into consideration. The response of the subject to the questionnaire might not be honest in all cases and this was recognized as a limitation.

The present study was delighted in the following aspects. The study will be restricted to 30 volleyball, 30 handball, and 30 kabaddi players. The age limit of the subject will be limited to the range of 18–25 years. The study was restricted to two physiological variables, namely, blood pressure and heart rate. Motor fitness variables are speed and endurance.

METHODOLOGY

In this chapter, the selection of subjects, selection of variables, reliability of the data, instrumental reliability, testers competence, subjects, collection of the data, and statistical techniques employed for anglicizing the date have been described.

Selection of Subjects

A total of 90 inter-collegiate levels consist of volleyball, handball, and kabaddi players were randomly selected.

Selection of Variables

The research scholar reviewed the available scientific literature, books, journals, periodicals, and magazine and research papers pertaining to the study. Taking into confederation of the importance of these variables and the feasibility criteria for these following variables were selected for the investigator. Physiological variables, blood pressure, vital capacity, motor and fitness variables, speed, endurance reliability of data. The reliability of data was ensured by establishing the instrument reliability and subject reliability.

Subject Reliability

As the same subjects were used to measure for self-confidence and achievement motivation of ability with questionnaires by the same investigator was considered reliable.

Collection of Data

The administration of the test and the method of the collection data were explained while collecting the data.

Physiological Variables

Blood pressure and vital capacity were measured using standard instrument.



Table 1: Results of correlation coefficient between vital capacity, diastolic blood pressure, speed 50 m, and endurance 1000 m of all the three types of players

Variables	Vital capacity	Diastolic blood pressure	50 m speed	Endurance of 1000 m
Vital capacity	1.0000			
Diastolic blood pressure	0.2596*	1.0000		
50 m Speed	0.1223	-0.0602	1.0000	
Endurance of 1000 m	0.1099	-0.0057	0.2062	*1.0000

*Significant at 5% level of significance 9, $P < 0.05$

Motor Variables

Speed and endurance were measured in track.

50 M dash (speed)

Purpose: To measure speed acceleration.

1000 M run (endurance)

Purpose: Test to measure cardiovascular endurance.

Vital Capacity

Vital capacity was measured with the help of drug spirometer.

Statistical Techniques

The data that were collected from the subjects were treated statistically. To find out the significance difference among the volleyball, handball, and kabaddi players for the main purpose of the study was "A Study on Physical and Motor Fitness among Volleyball, Handball, and Kabaddi Players."

Then, the data were analyzed with reference to the objectives and hypothesis using student unpaired " t " test and Karl Pearson's correlation coefficient using Statistical Package for the Social Sciences (SPSS) 11.0 statistical software and results were obtained thereby have been interpreted.

Data Analysis

After the data had been collected, it was processed and tabulated using Microsoft Excel – 2000 software. The data collected on vital capacity, diastolic blood pressure, 50 m speed, and endurance of 1000 m of volleyball, handball, and kabaddi players. The main purpose of the study was "A study on physical and motor fitness among volleyball, handball, and kabaddi players."

Then, the data were analyzed with reference to the objectives and hypothesis using student's unpaired t -test and Karl Pearson's correlations coefficient using SPSS 11.0 statistical software and the results obtained thereby have been interpreted.

It is also the intention of the investigator to find the out whether differences in the independent variable, namely, group of players (volleyball, handball, and kabaddi players) with respect to vital capacity, diastolic blood pressure, 50 m speed, and endurance of 1000 m and consequently others. The results are

presented in the following section. To achieve this hypothesis, the Karl Pearson's correlation coefficient technique has been applied and results are presented in the following table.

From the results of Table 1, we seen that, The relationship between vital capacity and diastolic blood pressure of all players (volleyball, handball, and kabaddi) players ($r = 0.2596$, $P < 0.05$) is found to positive and statistically significant at 5% level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, vital capacity increases with increase in diastolic blood pressure of all players.

The relationship between vital capacity and 50 m speed of all players ($r = 0.1223$, $P > 0.05$) is found to positive and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis rejected. The relationship between vital capacity and endurance of 1000 m of all players ($r = 0.1099$, $P > 0.05$) is found to positive and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. The relationship between diastolic blood pressure and 50 m speed of all players ($r = -0.0602$, $P > 0.05$) is found to negative and statistically not significant at 5% level of significance.

Hence, the null hypothesis is accepted and alternative is rejected. The relationship between diastolic blood pressure and endurance of 1000 m of all players ($r = -0.0057$, $P > 0.05$) is found to negative and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. The relationship between 50 m speed and endurance 1000 m of all players ($r = 0.2062$, $P > 0.05$) us found to positive and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.

CONCLUSION

Within the limitations of the present study and on the basis of the findings of the following conclusions are drawn. The volleyball players and handball players have similar vital capacity. The volleyball players have higher vital capacity as

compared to kabaddi players. The handball players and kabaddi players have similar vital capacity. The volleyball players and handball players have similar diastolic blood pressure. The volleyball players and kabaddi players have similar diastolic blood pressure.

The volleyball players and handball players have similar speed. The volleyball players and kabaddi players have similar speed. The handball players and kabaddi players have similar speed. The volleyball players and handball players have similar endurance. The volleyball players and kabaddi players have similar endurance. The handball players and kabaddi players have similar endurance.

Vital capacity increases with increase in diastolic blood pressure of handball player's vital capacity increases with

increase in diastolic blood pressure of all players (volleyball, handball, and kabaddi) players.

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Nizam College Principal Prof. L. B. Laxmikanth Rathod (second from left) hands the professional membership certificate to Mohammed Shamsuddin and institution membership citation to Sports Village Hyderabad. Also seen in the picture are Dr Avinash Jaiswal, Vice-Principal, Nizam Collage (right) and Prof. Rajesh Kumar (left), Principal, College of Physical Education, who also heads the Association.

Fitness body welcomes Sports Village

In a one-of-its-kind recognition, the International Federation of Physical Education Fitness and Sports Science Association (IFPEFSSA) gave membership for the first time to an Indian sports promoter and his entity in Hyderabad on Thursday. At a function held in Nizam College, its Principal Prof. L. B. Laxmikanth Rathod, granted professional membership to Mohammed Shamsuddin and institution membership citation to Sports Village Hyderabad, of which Shamsuddin is the founder-CEO. Shamsuddin said that this was a doubly memorable day as his efforts and those of Sports Village were recognised by a prestigious world body like IFPEFSSA.